

COMPUTERWORLD

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Presidential
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technology**
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be the sole threat
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And checking it twice

System upgrades, integration of micros,
quality personnel top DP execs' wish lists



By John Salsant
CW Staff

*Thus the night before
Christmas
And all through the
shop,
The systems were
whirling
Production couldn't stop.*

*The stockings were hung on the main-
frame with care,
In hopes that St. Nicholas soon would
be there.*

Ho! Ho! Ho! You there, you look like a DP manager, climb up on jolly old Santa's knee. Have you been good this year? Have you kept downtime to a minimum? Did you address that applications backlog? Did you maintain data integrity in the face of growing microcomputer use? Good. Now, tell Santa what you would like for Christmas.

Well... how about a bigger and faster CPU, Santa? "For my Christmas present, I would like a machine that we could never outgrow," said Donald Sitter, director of information services for Lyons Transport Lines, Inc. in Erie, Pa. "It seems that every time I turn around, we need a bigger or faster piece of equipment. We always need something more. I would like to have a machine that has a little dial on it that I could turn to make it bigger or to make it run faster."

Me too, Santa. "I would love to climb up on Santa's knee and ask for an upgrade to my CPU," laughed George Reid, DP manager for Safeway Stores, Inc. in Salt Lake City. "I would like to upgrade from our [IBM] 4331 Model Group 2 to a 4361. We are bringing our system right down to its knees with our current applications. We have got to improve our response time, too."

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TOP OF THE NEWS

Few companies do in-depth cost justification for micros, but those that do, keep the task simple. Page 2.

They like it. An early user of Software Arts, Inc.'s Spotlight said the product beats the current best-selling desktop management software. Page 6.

GTE Telemat Communications Corp. will link its Telemat system to telex machines worldwide. The company will also push the X-400 standard for connection to foreign public electronic mail services. Page 7.

Judge Harold Greene has approved the regional holding companies' request to enter businesses outside their regulated phone services. Page 15.

Bastin's out bit by bit. An inmate at a Silicon Valley jail nearly flew the coop by altering his own release date on the prison's computer. Page 16.

Infotron Systems Corp. unveiled a voice/data multiplexer that integrates with the company's IS4000 Intelligent Switching System. Page 29.

FYI

DP at the top of the world

By Donna Robinson
CW Staff

Santa Claus' seemingly miraculous one-day toy drop to children around the world would be impossible without superb communications, computer facilities and lots of helpers — and finding these things in the frozen North is not always easy.

The biggest communications problem in that icy region north of the Arctic Circle is access to equipment locations, according to Jim Chatelain, Anchorage, Alaska-based sales representative for Alaskanet — Alascom, Inc.'s packet-switching network. There are no telephone lines north of Fairbanks, Alaska, and equipment cannot be accessed by road, Chatelain said. Any construction or computer equipment repair in remote places means

flying in a crew.

Alascom launched Aurora, its own communications satellite, in 1962 and uses more than 170 earth stations to provide telephone service and data communications for small villages, government agencies and the oil companies that work the oil fields of Northern Alaska, Chatelain said. Small portable earth stations sit on the decks of oil rigs anchored in the sea.

Storms and snow threaten the equipment, so the larger, heated stations are cleaned off regularly, Chatelain said.

Villagers are hired to maintain the generators of the unmanned earth stations.

Computers for the Arctic Circle — airlifted to their destinations —

See ANCHOR page 10

Wang beefs up mid-range line with VS 65 mini

Firm targets 32-bit unit at IBM System/36 market

By John Donnam
CW Staff

LOWELL, Mass. — Wang Laboratories, Inc. last week added to its mid-range VS office system product line by announcing the VS 65 minicomputer system featuring a 32-bit data path, capable of supporting up to 30 users and field-upgradeable from the low-end, 16-bit VS 15.

The company also announced that it is no longer actively marketing the VS 25 and VS 45 16-bit minis, leaving the VS 65 positioned between the VS 15 and the VS 85 in Wang's VS series.

The VS 65 features a proprietary CPU using parallel architecture, a 16K-byte, high-speed cache memory and up to 4M bytes of main memory. The VS 65's 32-bit CPU features a 200-nsec maximum instruction cycle time, compared with a 600-nsec maximum cycle time on the VS 15 and a 160-nsec maximum cycle time on the VS 85, a Wang spokesman said. I/O processing is off-loaded to an Intel Corp. 80286 microprocessor and updated from an Intel 8086 I/O processor on the VS 15, VS 25 and VS 45, said John Deutsch, marketing manager for VS products at Wang.

The VS 65 runs the VS operating system and supports industry-standard protocols, including asynchronous, synchronous, binary synchronous, X.25 and IBM's Systems Network Architecture/Synchronous Data Link Control, the company said. The VS 65 can also be linked to other VS systems and to Wang Professional Computers. The product is compatible with other VS systems and hosts in a distributed-

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Bowling 'em over

The Boston College Eagles, led by Doug Patis, are among the college football powers using computers to get an edge on the opposition. See story page 4.

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NEWS

Firms warned on 'intuitive' micro purchase decisions

Difficulty of factoring benefits hampers efforts at cost justification despite rising costs

By Rita Bender
CW Staff

At the Bank of Boston, "one of the major factors in the success of the personal computer was that it was free of charge to users," systems officer Vic Tine commented recently at a meeting sponsored by the Ledgerway Group market research firm of Lexington, Mass. In the early days, the bank's system people told users, "We'll help you to do everything, and it won't cost you a nickel." Tine said, "We didn't try to cost-justify any of these things."

Today, a corporate personal computer bill may easily run into tens of millions of dollars, and users get their chance to foot the bill, but cost justification typically remains an inexact and limited process.

"Most people are buying micros for applications they intuitively believe in," noted Stephen Caswell, analyst with the consulting firm of Trigon Systems Group in Toronto. "If you're using a spreadsheet and doing things you never did before, what's the way to figure the benefits? What's the value of better decisions?" Caswell also said that the price of cost justification itself is substantial.

"The benefits are intuitively obvious," agreed Warren Kress, micro manager of the information center at Volkswagen of America, Inc. in Warren, Mich. "When you get to the point of measuring the secretarial hours and the executive hours saved on each machine, it's just ridiculous."

However, Peter Keen, consultant with Information Technology Services, a consulting firm in Newton, Mass., said that companies should try to get a handle on the benefits. "We've gone through the meeting of these things; now companies have to see what benefits we've gotten," he said.

While some benefits clearly cannot be pinpointed, it makes sense for companies to list them and to examine those for which estimates can be assigned, Keen said. He noted that one of his clients set up a benefit-tracking questionnaire with nine categories: work eliminated, costs avoided, return on time, improved decision making, improved services, competitive edge, quality of work life, spin-offs and other.

Many firms do not bother to cost-justify additional micros, while those that do keep cost justification relatively simple.

Keen disagreed with the common view that buying microcomputers should not require any more justification than buying a telephone, pointing out that the micro purchase quickly brings up system decisions. "It's more like buying a private branch exchange than a telephone," he said.

Despite these concerns, many firms do not bother to cost-justify additional micros, while others keep it relatively simple, DP managers said. In one typical response, Glen Fund, manager of end-user computing at GCA Corp. in Burlington, Mass., said he takes a hard look at the user's initial request for a system, but there is no specific formula.

"I want to see that they've given it some thought, that they're not just getting one because their neighbor's getting a machine," Fund said.

Once the system is approved, users are past the hurdle and can get software relatively easily, according to Fund.

"Some people have to do a lot [of justification], some do not," said Andrew Langlois, assistant controller at Moore McCormack Resources, Inc. of Stamford, Conn. "We ask people to bring their ideas to our MIS group, first to see if they can do it with existing tools, and second to see if they can do it with existing micros and users to build a tiny prototype, analogous to the classical feasibility study."

"Once beyond that, the guy has to complete an economic justification case," Langlois said. "A typical configuration costs \$4,200 to \$4,500 with a printer, extra memory and so on. We have to look at savings enough to pay for that in a couple of years or [the potential for] a sufficient competitive edge in the business."

Ken Sullivan, product marketing manager at Wang Laboratories, Inc. in Lowell, Mass., pointed to the personal computer's role in reducing DP backlogs and said, "I don't think a lot of hard justification has been necessary." However, he acknowledged that the micro situation is unusual in corporate purchasing. "Sometimes it seems totally against what I call industrial purchasing policy, but in the case of new technology, a consumer mentality has seemed to pervade the organization," he commented.

Some firms have taken a hard line that requires demonstrable cost avoidance, noted George Colony, president of Forrester Research, a consulting firm in Cambridge, Mass. "In one company growing at 40% per year, to get a micro you had to sign a paper saying, 'I will hire less than 40% additional people,'" Colony said. "But that doesn't really work indefinitely."

Court OKs STC finance plan

DENVER — Storage Technology Corp. (STC) received authorization last week from a bankruptcy court here to utilize up to \$140 million in cash and receivables of its wholly owned subsidiary, Storage Technology Finance Corp. The plan will allow STC to tap a source of funds worth an estimated \$80 million to continue operations while undergoing reorganization under Chapter 11 of the U.S. Bankruptcy Act.

A similar plan turned down a week earlier would have given superpriority creditor status to a consortium of banks that had loaned money to the subsidiary. That plan would have

placed them ahead of all other unsecured creditors for claims to the parent company's assets.

According to a company spokesman, the approved plan provides "no real superpriority status." Many of the creditors of the subsidiary are also unsecured creditors of the parent company.

Following approval of the plan, Thomas F. Wanda, STC's president and chief executive officer, said, "It will help overcome the concern of our customers and employees about the viability of [STC], and second, it will permit the company to move forward with its reorganization."

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CORRECTIONS

In the Nov. 19 industry spotlight report on the computer leasing industry, CMI Corp. was incorrectly identified as a Minnesota-based firm. CMI is based in Bloomfield Hills, Mich.

Fujitsu Ltd.'s FM-16 Beta personal computer is based on Intel Corp.'s 80186 microprocessor, not a Motorola, Inc. microprocessor as previously reported.

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NEWS

Systems worth extra points to college football powers

By Paul Kormanowski
CW Staff

The pot of gold at the end of a college football team's rainbow is a victory in a bowl game. During the holiday season, 34 teams will vie for gold in 17 contests.

Because these games feature the nation's best teams, the difference between victory and defeat is often minuscule. Last year, the national championship was decided when Florida's University of Miami defeated the University of Nebraska by one point in the Orange Bowl.

With the margin of victory so slight, teams search for anything that will give them an advantage over their opponents. In some cases, computers help provide the desired edge. "Computers help a coach determine what an opponent will do in a certain situation," noted William Hemmingsway, a graduate-assistant football coach at Oklahoma State University. "That knowledge translates into a significant advantage in a game."

Computers have joined weight training facilities and practice fields as necessary tools for most collegiate football teams. "I would say that close to 90% of the collegiate football teams use computers in some way," said Wayne Hall, defensive line coach at Auburn University in Alabama.

Brian O'Connor, part-time scout for Boston College (BC), noted that computers provide two benefits: time savings and confidence in information. "With a computer, a coach doesn't have to sit, watch films and tabulate the number of times a team runs a certain play," the scout noted. "A report can produce that information."

Hemmingsway added, "Our computer saves our

staff at least 34 hours each week. That additional time is a godsend."

More reliable than a coach's perception

In addition to saving time, a computer provides reliable information. A computer report that states that a team will pass 60% of the time in a certain situation is more reliable than a coach's perception of what the opponent will do, according to O'Connor, who helped design a package for BC's team that runs on the college's IBM 4341 mainframe.

Rather than designing its own package, Auburn is one of three bowl-bound teams running Sports Pac, a sports package from MDS Quasent Corp. in Hayward, Calif. Sports Pac runs on an MDS mini-computer and automates collegiate athletic department or professional sports team functions.

Hall's interest lies in Sport Pac's game preparation module, which was originally designed for the Tampa Bay Buccaneers in 1977. The first step in Auburn's use of that module requires two Auburn graduate-assistant coaches: One works a projector that shows film of the other team's games; a secretary enters data into the MDS system. "We enter data such as what yard line the team is on, what formation they line up in, where the hash mark is, what play they call and how many yards they gain or lose," the defensive coordinator said.

Once the information is entered, Hall can choose from approximately 250 reports the system produces. The reports tabulate what the opponent has done in previous games. "We are interested in learning the opposition's offensive tendencies," he noted. "For example, they may run to their left on third and two 80% of the time."

Then Hall and the other defensive coaches devise a plan to counter those tendencies. "If they consistently run to their left on third and two, we may decide to shift our defense that way," Hall explained.

While Hall uses the computer to monitor the other team's offense, the opponent can use a computer to mask its intentions. "A report may point to a tendency," said Ed Zaunbrecher, offensive coordinator at Louisiana State University. "We then have two choices. If a play has proven to be successful, we can run it until a defense stops us. Or we may fake the play and try to fool the defense."

The guessing game progresses during the match. "We chart plays during a game and determine if the offense has made any adjustments," Hall said. "Sometimes there is more time to prepare for a game. There may be a week or two between games or before a bowl game. Then, teams are better able to mask tendencies, which makes my job more difficult."

Hall has worked with computer scouting systems since he was a graduate assistant at the University of Alabama 12 years ago. "Most systems are tied to a university mainframe," the coach said. "The team depends on someone else to run a program and produce a report. We do not share our system with any department. With 80,000 people sitting in the stands and a national television audience, it is obvious to a lot of people when we have prepared our team. We don't want to fall because the computer was down. In another department, employees may lose track of a few thousand dollars. But they will find it. Once we lose a football game, we can't get it back again."

Exec micro use on upswing

Survey finds young professionals leading the way in personal computer use

PARSIPPANY, N.J. — Executives are rapidly taking to the personal computer, and the younger the executive, the more likely he is to use a microcomputer in his office or at home.

A survey conducted by Trinet, Inc. — a subsidiary of Control Data Corp. — revealed that 36% of the 100 corporate executives surveyed use personal computers when making critical business decisions, up from 6% two years ago. About a quarter of the respondents use personal computers at home.

The survey was conducted among 100 corporate executives, each of whom is one of the top five officers in a Fortune 500 company.

Three-quarters of the respondents who use computers have done so for two years or less. About half of the executives under 50 years of age have adopted microcomputers, compared with one-fifth of those over 50. The younger group (under 50) comprised 47% of the sample.

Fifty-eight percent of each age group employs computers for financial analysis, the survey revealed, but there are differences in the way each age group uses microcomputers for other tasks.

Older respondents turn to microcomputers more often for support decisions. These include:

- Long-range planning — over 50,

- 45%; under 50, 21%.

- Personnel — over 50, 33%; under 50, 6%.

- Public affairs — over 50, 25%; under 50, 17%.

Younger microcomputer users focus their skills on:

- Budget planning — under 50, 54%; over 50, 47%.

- Market intelligence — under 50, 38%; over 50, 25%.

Personal computer users are far more likely than non-users to take advantage of available information capabilities, the survey showed. Computer users more frequently access:

- On-line companies.

These are accessed daily by 16% of users as opposed to 5% of nonusers and several times a week by 45% of users as opposed to 13% of nonusers.

- External data bases. These are accessed daily by 12% of users as opposed to 5% of nonusers and accessed several times a week by 33% of users as opposed to 11% of nonusers.

- Electronic mail. This is accessed daily by 23% of users as opposed to 3% of nonusers and accessed several times a week by 29% of users as opposed to 16% of nonusers.

The price of the survey is \$295.

More information is available from Trinet, Marketing Department, 9 Campus Drive, Parsippany, N.J. 07054.

About half of the executives under 50 have adopted micros, compared with one-fifth of those over 50.



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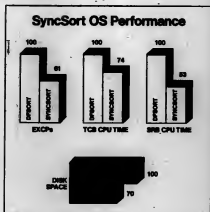
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NEWS

Early user finds Spotlight outshines Sidekick

Software Arts desktop management package said to run easier than best-seller

By Paul Koroscio
CWI Staff

DETROIT — The Pontiac Division of General Motors Corp., an early user of Software Arts, Inc.'s Spotlight, a desktop management package for the IBM Personal Computer, compared Spotlight with the best-selling desktop manager, Borland International, Inc.'s Sidekick, and decided that Spotlight was a better product.

"Some of our applications had trouble working with Sidekick," said Alan L. Fox, senior systems analyst at the Pontiac Division. "Programs would either not run, or error messages would appear. We could not determine why that occurred."

Spotlight, announced in October, offers five desktop management functions:

- Appointment book.
- On-screen calculator.
- Telephone listing.
- DOS files.
- Notepad.

The package is not designed as a stand-alone application. Rather, it resides in a portion of random-access memory (RAM) that an application program does not use. This allows a user to work with a data base management or spreadsheet package.

While working with the application, users who require a Spotlight function can reportedly call Spotlight by pressing one key. After using that function, users can again press one key and return to the original application.

Although desktop management packages are relatively new, Fox said he believes they fill an important function. "Desktop managers are just as important as spreadsheets or word processors," Fox said. "Since they offer a number of facilities, they fill at least one need for every user. We think

they are a vital part of the workstation."

Fox reported that users quickly understand how to operate Spotlight. "Before we give our users workstations, we hold tutorials for the various packages," he said. "Users can be working with Spotlight after only an hour of instruction."

However, the systems analyst listed a number of drawbacks to the desktop manager. "The user

'Desktop managers are just as important as spreadsheets or word processors. Since they offer a number of facilities, they fill at least one need for every user. We think they are a vital part of the workstation.'

— Alan L. Fox, senior systems analyst,
GM Pontiac Division

should be able to change the color scheme," he said. "For example, a user may set packages so they produce white letters on a blue screen. With Spotlight, he is unable to make this setting."

Another limitation was with the calculator that engineers require. "We would also like to use floating-point decimals with the calculator," Fox noted. "It is also difficult to work with the calculator because it takes up half a screen. Often, the user is unable to see the data he wants to calculate."

Software Arts has been responsive to the pack-

age's limitations. Lack of an automatic telephone dialer, for example, was rectified in the latest release of the program. "Software Arts has listened to our complaints and claims to be willing to solve them," he said.

Spotlight is part of a prototype engineering workstation that the Pontiac Division is designing. Currently, 12 workers are testing the workstation, which consists of an IBM Personal Computer XT with 640K bytes of RAM, an integrated operating environment that GM developed and a slew of software packages including the following:

- Lotus Development Corp.'s 1-2-3.
- Liffert Software Inc.'s Volkswriter Deluxe, a word processing package.
- A scientific version of Volkswriter Deluxe.
- Softcorp, Inc.'s Project Six.
- Funk Software, Inc.'s Sideways.
- Software Arts, Inc.'s TK Solver.
- Forte Co.'s SETP terminal emulation package.
- IBM's Word Proof spelling checker.
- Rogue River Software, Inc.'s SPP PC.
- Ashton Tate's Dbase II.
- Hayes Microcomputer Products, Inc.'s Smart-

com. "We chose a number of packages so that the workstation could meet the wide range of our users' needs," Fox said.

The number of GM users who will work with Spotlight depends on the success of the prototype workstation. "There are 12 users in a pilot system right now," Fox said. "We soon plan to expand that to 40 users. If the expansion is successful, the number could grow to 200 or 300 in our division. We are just one division in GM; if other divisions adopt the workstation, there could be thousands of users."

IBM slows production of AT; unable to fill first-quarter orders

BOCA RATON, Fla. — IBM has slowed production of the enhanced version of its Personal Computer AT and rescheduled deliveries for that model, the company's Entry Systems Division acknowledged last week.

"IBM is unable to fill all of its orders through the first quarter of 1985," a spokesman said.

Major accounts placing new orders for the enhanced AT may have to wait up to nine months, he noted. IBM expected to announce an overall delivery schedule for final 1984 and early 1985 shipments last Friday.

The enhanced model adds a 20M-byte hard disk drive and more memory to the basic AT. The spokesman attributed the production slowdown to shortages of key components, including the hard disk drive. Despite some user reports of difficulties with that drive, he said that "there are no problems with the systems that we

have shipped."

Strong demand for the enhanced AT, which "has far exceeded IBM's expectations," was the other factor that made rescheduling a necessity, he commented. ATs have been in short supply since shipments began (CWI, Dec. 17).

Stand-alone systems

Both basic and enhanced ATs have been sold, so far, as stand-alone systems.

The hard disk drive is a prerequisite for the AT to act as a multitier system (under IBM's PC Xenix) or as the file server for IBM's PC Network. PC Xenix and the PC Network Program guide will be available in the first quarter of 1985, according to IBM.

Overall AT production is on the upswing, as IBM is boosting production of the basic AT, the spokesman added.

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LOOK FOR IT JANUARY 14th.

Computer coordinators form group

EUGENE, Ore. — A Special Interest Group for Computer Coordinators (SIGCC) has been established as the first SIG of the International Council for Computers in Education (ICCE).

The SIGCC's membership will be composed of those coordinating use of personal computers in either a school building, school district or a county. The SIG, according to the

ICCE, will be used to clarify the role of computer coordinators, promote cohesiveness among them and provide a forum for sharing information.

SIGCC membership is priced at \$10 for ICCE members in the U.S. and \$17 for non-ICCE members outside the U.S. The ICCE is located at the University of Oregon, 1787 Agate St., Eugene, Ore. 97403.

NEWS

Telenet links Telemail worldwide, backs X.400 standard

WASHINGTON, D.C. — GTE Telenet Communications Corp. announced last week that subscribers to its Telemail electronic messaging services will be able to carry on two-way communications with the large installed base of telex users worldwide.

Telenet also announced that it will promote the recently adopted worldwide X.400 standard for establishing connections between private electronic message systems and its Telenet network, as well as to link Telenet to foreign public message systems.

Telenet President J. David Hann said that Telenet was seeking to position the company as a major supplier of complete electronic messaging systems.

Telenet said it would allow Telenet users, who, Telenet said, comprise an estimated 30% to 25% of electronic mail users in the U.S., to produce hard-copy letters with company letterheads, logos and signatures that will be delivered with the aid of the U.S. Postal Service on a next-day basis.

This service, called Telemail-Xpress, will have two options: high-quality business letters for same-day delivery and inexpensive next-day delivery.

A Telemail-Xpress letter will cost an average \$2 to \$5, and the service will be available in the first quarter of 1986.

Telenet said that the Telemail-telex interconnection arrangement will permit 1.5 million telex machines worldwide to interface with the electronic mail system in a two-way communications mode. Hann predicted that while the telex market will continue to grow in the future, it will slowly convert to the use of electronic terminals. The International Telemail-telex communications link will be available in the first quarter of 1986.

Hann said that the principal marketing thrust Telenet will adopt for its Telemail subscribers will be interconnecting the Telenet network with foreign public electronic message systems to allow terminal-to-terminal communications. Hann said that Telenet currently has not reached agreements with any foreign postal telephone or telegraph authority.

GTE Corp. operates overseas telephone and data communications services as an international record carrier and currently has operating agreements with 10 foreign countries, mostly located in Europe.

However, Hann said that Telenet is not planning to solicit private intracompany electronic mail systems actively for connection to the

Telemail system unless those systems adopt the international X.400 standard, which conforms to the sixth and seventh levels of the International Standards Organization's Open System Interconnect model.

In this connection, Joseph J. Porfelli, vice-president and general manager of Telenet network applications and

terminals, said Telenet had agreed with Telecom Canada to interconnect its Canadian Ervay 100 system with Telenet using the X.400 interface.

Until now, Telemail users in foreign countries have communicated via their own public packet-switched network to Telenet's Telemail system. The new capability,

which will be available in the second quarter of 1986, will permit direct Telemail system access from one country to another, as though the user was making a local Telemail call in one country.

George Lieb, Telenet's director of electronic messaging services, said that Telenet has no immediate plans to pursue proprietary com-

puter-to-computer applications, such as that recently announced by General Electric Information Services Co. (JW, Dec. 18). "I believe that third-party manufacturers will develop interfaces from an IBM, a [Digital Equipment Corp.] or a [Wang Laboratories, Inc.] environment that implement the X.400 standard," Lieb said.

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For example, you get both parallel and IBM twin-ax interfaces, so your 5180 will run with your IBM PC (or any ASCII computer) as easily as it does with your 34/36/38. You get cable-through and terminate capability. Bi-directional printing at 180 cps. Six different character pitch settings. The most complete, friendly and ergonomic front panel controls in its class. And legendary Datasouth reliability.

So treat your computer and your accountant to the best printer a little money can buy: your new Datasouth TX-5180. Call for one today. It's toll-free.

AUDITOR'S REPORT

We have examined the Datasouth TX-5180 and found its features and characteristics exceed accepted expectations for IBM 34/36/38 printers. A partial list follows.

- ☐ Tablettes, impact matrix serial printer
- ☐ 180 cps bidirectional printing
- ☐ tractor feed forms, 3" x 15"
- ☐ Cartridge ribbon
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- ☐ Push button programming
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The TX-5180's ratio of value to price is exceptional. Purchase of the device is highly recommended.

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NEWS

Presidential libraries induct minis in automation project

Systems to provide administrative support initially, to aid research efforts eventually

By John Deenoud
CI Staff

WASHINGTON, D.C. — What do Herbert J. Hoover, Franklin D. Roosevelt, Harry S. Truman, Dwight D. Eisenhower, John F. Kennedy, Lyndon B. Johnson and Gerald R. Ford have in common besides having been U.S. presidents?

Each has a presidential library that is about to become automated.

Each presidential library is now installing a Datapoint Corp. 8645 minicomputer, which is based on the Intel Corp. 8008 microprocessor and which runs the RMS operating system. Libraries are also installing Datapoint 8230 terminals and printers, to be used for office automation initially and later for access to a data base to aid research.

At the outset, the Datapoint system will be used to handle administrative work, including word processing and spreadsheet analysis. Tom Soapes, archivist for program and policy with the Office of the Presidential Libraries here, which is part of the National Archives office, said Datapoint was chosen because the National Archives head office uses Datapoint equipment and because the libraries' management teams were impressed with the company's Arc local-area network. Each library will start off with 512K bytes of main memory and 20M to 40M bytes of hard-disk storage, Soapes said.

Software

Software will include Datapoint's Vista package for word processing and Microsoft Corp.'s Multiplan for

spreadsheets.

The libraries are spending \$300,000 on hardware in the first phase of automation, after spending \$140,000 for an initial study and \$100,000 for a system design, according to a consultant for the automation project.

Consultant William Yoder of American Management Systems, Inc. of McLean, Va., described the presidential library automation as "the first top-down analysis and design ever done for a major archival institution." Previous attempts have involved trying to fit software developed for libraries to the needs of an archive, which has a different cataloging system and no circulation. "The main reason it hasn't been done before is because archives don't have much money," Yoder said.

The presidential library system houses more than 200 million pages, with from six million to 45 million pages in each library. The material includes 147 million pages of personal papers and 11 million pages of federal records.

In addition to the seven libraries, the Presidential Libraries Office has the papers of former Presidents Rich-

ard M. Nixon and Jimmy Carter. Nixon has 48 million papers now being kept by the Nixon Material Project in Alexandria, Va., and the Carter library is under construction.

The libraries' primary clients are history scholars who research broad topics for doctoral dissertations, master's theses and books.

'Pivotal thrust'

Soapes said the arrival of Datapoint equipment "is just an initial shipment to get some sort of automation into the libraries."

In the second phase, the presidential libraries plan to bring up a data base management system for archival processing and references. "This is the pivotal thrust of our move into automation,"

Soapes said.

Material is now manually controlled at the "folder-title level," Soapes said.

After processing, the material is put into file folders that are stored in special boxes called Hollinger boxes. Lists are made of the folder titles. Manual control is the only control at present.

"We have a large search requirement, and all of our reference work is done manually by reading through

these folders," Soapes said. He added that 30% to 35% of the staff's time is spent handling research requests.

"If we can automate it, we project important savings in productivity."

Yoder is now designing a nine-level hierarchical data base that will index the vast collections, many of which are quite detailed.

'Regarding Cuban situation'

For example, among collections at the Kennedy Library in Boston are files of the former president's doodles.

The doodles are filed in chronological order by number with a description of the setting.

In 1961, doodle descriptions included: "on envelope of letter from Robert Kennedy," "concerning faulty clock" and "regarding Cuban situation."

Robert Humphreys' papers

In another example, the Eisenhower Library has several files with the papers of Robert Humphreys, former Eisenhower public relations and Republican National Committee campaign officer. Titles include: "1964 Republican National Committee vote-producing decisions" and "1968 Republican National Committee campaign school — speeches."

"We're building a system that would allow this information to be put on-line and searched," Yoder said.

A vendor for the second phase has not yet been selected. Soapes said a decision will not be made until the data base software is more fully developed.



ON JAN. 15, 1985
Boston's JFK Library

Get caught up in our net report

Are you lost in a forest of information or tangled in a web of data? ComputerWorld's Net Report on communications networks will help you understand the state of the art in communications networks today.

The Net Report will focus on corporate networking choices, including the feasibility of satellite systems and protocols for networks.

Contributors to the Net Report should bring one of two items: a technical article that discusses new trends or applications stories that entice a particular user com-

pany to change its network. The report will be published in the January 1985 issue of ComputerWorld.

Articles should be 1,000 to 1,500 words, double-spaced, with a cover letter and a telephone number at which they can be reached.

If you have a story you would like to tell, or know you would like to speak at or give a presentation, contact David Palmer, Special Reports Editor, ComputerWorld, Box 900, 375 Commonwealth Road, Framingham, Mass. 01701.

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The report will be published in the January 1985 issue of ComputerWorld. Articles should be 1,000 to 1,500 words, double-spaced, with a cover letter and a telephone number at which they can be reached.

Info/Central set for Feb.20-22

LOS ANGELES — Candie Corp., a manufacturer of performance-monitoring software, has announced that its user conference is scheduled for Feb. 21 to 22 at the Sheraton Plaza Hotel here.

The theme of the conference is "Managing the Changing Data Processing Environment." Terrence E. Deal, coauthor of "Corporate Cultures," plans to speak on the topic of data processing and corporate cul-

ture in the 1990s. Other scheduled topics include technology discussions, user experiences in problem solving and system tuning techniques and product overviews.

The prepaid registration fee is \$290, and people registering at the door will be charged \$360.

More information is available from Candie, headquartered at Suite 2404, 10580 Wilshire Blvd., Los Angeles, Calif. 90024.

The Kennedy Library in Boston is the largest collection of papers ever assembled by a single individual. It contains over 48 million pages of papers, including those of Robert Humphreys, former Eisenhower public relations and Republican National Committee campaign officer. The library is now being automated with Datapoint minicomputers and terminals. A net report on communications networks will be published in the January 1985 issue of ComputerWorld. Articles should be 1,000 to 1,500 words, double-spaced, with a cover letter and a telephone number at which they can be reached.

For more information, contact David Palmer, Special Reports Editor, ComputerWorld, Box 900, 375 Commonwealth Road, Framingham, Mass. 01701.

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For more information on VMCENTER, call or write VM Software, Inc., 2070 Chain Bridge Road, Suite 365, Vienna, Virginia 22180, telephone (703) 821-6886.

VM
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NEWS

Computerized kiosk offers gift suggestions to shoppers

By Edward Wimmer
 Of Staff

DEARBORN, Mich. — Step aside Santa. A nine-foot, computerized kiosk at a shopping mall here has helped customers find the right present for each person on their Christmas shopping lists, all without regard to whether the recipient has been naughty or nice.

The Touch 'n' Choose kiosk, developed by AT&T Consumer Products group and installed in a pilot project at 19 U.S. shopping malls operated by the Touchman Co. of Troy, Mich., is based on an AT&T 6300 personal computer with a 19-in. touch-screen display. Customers press the appropriate responses on the screen to questions about their price range and the age, sex and lifestyle of the person for whom they are shopping. The black and chrome kiosk responds with from six to 40 gift suggestions, displayed on the monitor in color.

Using software developed for the application by AT&T, the kiosk at

the Fairlane Town Center mall here evaluated the shoppers' responses against a list of 1,500 to 2,000 different potential gifts from the mall's 200 stores. Pictures of the gifts are stored on a videodisk player in the kiosk and are called up by Touch 'n' Choose during its presentation of gift suggestions.

Shoppers use the service for free; the kiosk's operating costs are defrayed by a continuous stream of 30- and 60-second commercials that run on a second color monitor located at the top of the kiosk. The commercials are supplied by national advertisers to promote products they have for sale in the mall.

Such a scene is likely to turn a few heads, and that is just what happens when shoppers pass by, according to William Winter, mall manager. Winter said that no more than

six or seven people may be standing in line for the electronic Santa at its busiest time, but he added that as many as 20 people may be nearby watching Touch 'n' Choose at work.

The kiosk "has been a delight to the vast majority of customers both young and old," he said. However, it is not the first such kiosk the mall has had in use to help with Christmas buying. Last year, Winter said, the mall used a gift suggestion kiosk based on the Texas Instruments, Inc. Personal Computer. The machine's keyboard interface was "much less user-friendly" than the touch screen of this year's kiosk, he observed.

Other applications

Thomas Adams, marketing vice-president for Touchman, said it was still too early to tell whether the kiosk, in use in the malls since Thanksgiving, would be used again during next year's holiday season. An AT&T Consumer Products spokesman, meanwhile, said the kiosk could have other applications, such as electronic directories to large buildings. As a directory, the kiosk could display a route-specific map to lead the user to his destination, ac-

ording to the spokesman.

At another of Touchman's Detroit-area malls, the Twelve Oaks Shopping Center in Novi, Mich., Sheila Armstrong, mall marketing director, reported that the Touch 'n' Choose kiosk in use there has drawn praise from some customers for its gift suggestions. Armstrong said customers have come to appreciate the kiosk because it is a timesaver and because it "merges the holiday wish with what is happening technologically" in society.

Twelve Oaks is apparently no wallflower when it comes to merging computers with the holiday season. In the mall's main concourse, Santa himself sits enthroned in a holiday display featuring 15 Tandy Corp. personal computers.

Children can use the computers to write letters to Santa, which are printed out immediately, or play a seasonal version of tic-tac-toe using Christmas trees and ornaments for markers.



The Touch 'n' Choose monitor displays from six to 40 gift suggestions in color.

ARCTIC from page 1

are installed in climate-controlled modules at remote sites, said Dick Denton, regional facility engineer in charge of automation at Atlantic Richfield Co. (Arco).

The Modular Computer Systems, Inc. machines and Digital Equipment Corp. PDP-11/44s that keep track of operations and human resources information for the three oil fields that Arco operates north of the circle need special antistatic mats around them as protection against the dry air, he said.

A computer delivery must be timed just right. The modules that house computers are sometimes as large as football fields and one to three stories tall, Denton said. A module is constructed in the state of Washington, hauled by barge to the tip of Alaska in the summer when the ice moves out of Prudhoe Bay for a few weeks and loaded onto crawlers for the remainder of its slow journey, he said. This container holds equipment and also becomes the office for the DP staff.

Microwave dishes

Arco uses microwave dishes mounted on towers in the Prudhoe Bay, Kuparuk and West Sak oil fields and at 18 drill sites for communications between computers and personnel, Denton said. The central communications tower is located at a base camp in the North Slope region of Alaska, site of a three-story module that is home to DP and other oil field staff, he said.

DP personnel work a 12-hour day, seven days in a row, Denton said. They then fly to Anchorage or wherever they live for seven days of rest, he said. "There is special incentive pay and lots of time off, but even with that, some people can't take it," he said.

A few weeks ago, the sun set for two months, said Lowell Humphrey of Supplet Alaska Co. in Anchorage, which supplies contract programmers and develops large computer projects for Alaskan companies. "It is dark and cold all the time, and there's nothing to break the wind up there," he said.

Workers — about 2,000 in different facilities — spend all their time inside together while they are working the seven-day shift, Humphrey said, because the temperatures outside routinely drop to 40 degrees Fahrenheit below zero during the

long winter season. Although personnel earn extra isolation differential pay, eat excellent food and have access to racquetball, television and movies, the life is tough, and few people stick it out for long, he said. "If you work those hours and never see the sunshine, depression sets in quickly. Also, little irritations amplify quickly," he said.

The people who are attracted to jobs in

the Far North are often outdoor sports enthusiasts who enjoy the kinds of recreation that they need extra time to travel to, Humphrey said. "Operators and computer operations supervisors generally make more money and have more time off than their counterparts in Anchorage, and those people stay several years," Humphrey said. Programmers or analysts get bored with the sameness of the situation — they need to be in a cosmopolitan atmosphere like Anchorage, so they don't stay long, he said.

Even with the difficulties, the jobs are much sought after, Humphrey said. "Money and time off are the motivators," he said. Given the entrepreneurial spirit in Alaska, the time off allows people to build and buy houses or work on projects, Humphrey added.

Will
 Computer Fat
 strike you
 next?

LOOK FOR IT JANUARY 14th.

NEWS

Micros help Christmas tree grower harvest profit

By Paul Kerasiowski
CIN Staff

CADILLAC, Mich. — Often, Christmas misses the good with the best. The joyous holiday spirit can be dampened in long department store lines.

So it is with Emerald Tree Associates, Inc., the third largest U.S. Christmas tree grower and distributor here. "In the last month, we've had to add a third shift and work 24 hours a day to keep pace with our work load," noted Steven Seeborg, owner of the Christmas tree company. "This year has [been] our busiest holiday season." He claimed that in 1984, Emerald will sell half a million trees grown on 8,000 acres in Michigan and Tennessee.

The main reason why Emerald can handle such business growth, Seeborg said, is the company's purchase two years ago of two IBM Personal Computers and the PC Focus data base management system from New York-based Information Builders, Inc. "Working with a computer is much more efficient than working with a manual system," the owner maintained. "Last year, we were only testing the system. This year, we know what it can do."

Yearling process

Although Christmas tree sales are seasonal, the work for this year's harvest began 12 months ago. "In January, we begin planning our planting and spraying," Seeborg noted. "In March, we plant approximately two million trees. The trees are sprayed for bugs in May and June. In July, we conduct an inventory for all trees and mark the trees that will be sold at Christmas. In October and November, we conduct our harvest."

The PC Focus system fills two requirements. Its data base management facilities are used to track tree planting and growth. Seeborg, who is not a computer programmer, wrote various applications for Emerald, including inventory, order processing, shipping, invoicing, standing timber, supplies and cutting contracts. "With PC Focus, we are able to track where trees are planted, how many are planted, how fast they grow, when they are sprayed and the cost of maintaining our fields," the owner said.

The microcomputer system also allows Seeborg to control the distribution of the trees. "We work with a number of supermarket chains," he said. "One store may call for additional trees. Rather than sending it more trees, we may be able to ship [the store] trees from a nearby member of the chain."

Information produced with PC Focus interfaces to

Emerald's accounting system from American Business Systems, Inc., a Westford, Mass., software vendor.

Mail-order plus trees

In addition to its Christmas tree business, Emerald sells miniature pine trees by mail order. PC Focus is used for credit checks, generating mailing lists and ordering the

trees, Seeborg said.

Emerald's relationship with PC Focus has taken a few soap-opera twists. In 1979, the tree seller had turned to a time-sharing and mainframe version of PC Focus. "We liked [PC Focus], but we were paying close to \$30,000 for the three months we required the system," Seeborg said. "It was just too

expensive for us to keep."

Consequently, the company reverted to its manual system.

When IBM announced its Personal Computer, Seeborg realized that for the three-month cost of the time-sharing system, Emerald could purchase a complete computer system. And it did. The choice of software

was simple. "We didn't look at any package other than PC Focus," Seeborg said. "We were familiar with it and liked its features."

Seeborg said he hopes to enhance the system and eliminate the company's overtime. "We have ordered an [IBM Personal Computer AT] and should receive it in February," he said.

Realia COBOL. Migration without migraines.

Until recently, you had to abandon the business computer language when you developed micro-computer application software. The available micro COBOLs were inadequate—too limited, too slow. The best alternative—the XT/370 or AT/370 using IBM's COBOL—was very expensive and still too slow. To get acceptable performance, you had to retrain your programmers in Pascal or C.

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You can download mainframe systems for development, maintenance, and testing. Productivity will soar.

You can compile faster with Realia COBOL than in most mainframe environments, even on floppy-based systems. Compile-time options allow cross-reference, brief and full code listings, and helpful features like subscript and decimal value checks.

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Our users report that their systems run up to 20 times faster when compiled by Realia COBOL. That's compared to our nearest micro competitor. The ratio is up to 100 times faster when compared to any of the others.

On the IBM PC AT, your programs can run at 370/148 to 370/158 speed. Realia's file system really makes your machine deliver, giving it a distinct edge over Pascal or C. Our indexed file system even has full key compression and buffer controls just like VSAM. The generated code is pure MS-DOS, so it can be run on most of the 8088/8086 machine family.

And you can sell your programs without paying us a royalty fee.

Realia COBOL is priced at \$995, including one year of maintenance and upgrades. Subsequent maintenance and upgrade contracts are currently priced at \$125/year/copy. Available for the IBM PC, PC XT, 3270 PC, PC AT, PC-compatibles, and the TANDY 2000.

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NEWS

WANG

ed network and supports Wang Office network-based applications, such as electronic mail.

Other features

Other VS 65 features include support for up to 2.6G bytes of disk storage, nine-track or cartridge-tape systems, remote diagnostics and up to 48 ports for workstations and peripherals. The VS 65 also supports Wang's relational data base management system, called Professional Application Creation Environment.

The price for a VS 65 package with 1M byte of main memory; a 5¼-in., 360K-byte diskette drive; 147M-byte internal fixed disk; two-port disk controller; data storage cabinet; and a 147M-byte fixed disk with a 14M-byte removable disk; and four 4230-VS workstations, is \$54,300, the vendor said.

The price for a field upgrade from a VS 15 to a VS 65 is approximately \$12,000, according to the company.

Aimed at System/36 must

Wang is aiming the VS 65 at the same market as IBM's System/36, the announcement indicated.

In a statement accompanying the VS 65 announcement, John F. Cunningham, Wang's president and chief operating officer, said, "Recent announcements and statements of direction confirm IBM's need for distributed data processing solutions to overcome an incompatible and costly product mix."

In related announcements, Wang unveiled two packages, the VS 65-S and the VS 15-2WS.

The VS 65-S includes the

VS COMPUTER SYSTEMS CHARACTERISTICS

| System | VS 15 | VS 25 | VS 45 | VS 100 | VS 200 |
|--|--|--|--|--|--|
| Address Space | 16-M | 32-M | 32-M | 32-M | 64-M |
| Communications Protocols | WSP, Transport, Wangnet, Wangnet's Wang Band, Asynchronous, 2780/2780, 3271, Binary Synchronous, SW/SDLC, VS-HASP, TTY | WSP, Transport, Wangnet, Wangnet's Wang Band, Asynchronous, 2780/2780, 3271, Binary Synchronous, SW/SDLC, VS-HASP, TTY | WSP, Transport, Wangnet, Wangnet's Wang Band, Asynchronous, 2780/2780, 3271, Binary Synchronous, SW/SDLC, VS-HASP, TTY | WSP, Transport, Wangnet, Wangnet's Wang Band, Asynchronous, 2780/2780, 3271, Binary Synchronous, SW/SDLC, VS-HASP, TTY | WSP, Transport, Wangnet, Wangnet's Wang Band, Asynchronous, 2780/2780, 3271, Binary Synchronous, SW/SDLC, VS-HASP, TTY |
| Storage Size in Bytes (minimum-maximum) | 200K-2M | 16-M | 16-M | 16-M | 400-10M |
| Performance Price (Whole CPU and memory) | \$13,000 | \$18,000 | \$64,000 | \$80,000 | \$170,000 |
| Operating Systems | VS/OS | VS/OS | VS/OS | VS/OS | VS/OS |
| I/O Ports | 8 | 8 | 8 | 16 | 16 |
| I/O Channel Speed (M/sec) | 2.5M | 3.5M | 4.2M | 8 | 16.8M |

* Wang Systems Networking

IBM 0597

VS 65 mini, now offered with two 147M-byte, 8-in. internal fixed disks, and a tape cartridge drive. Previous versions offered less storage.

The price for a VS 65-S

The announcement indicated that Wang is aiming the VS 65 at the same market as IBM's System/36.

with 1M byte of main memory, the internal drives and cartridge, four 4230 workstations, Wang Word processing and one compiler, is \$66,000, Wang said.

The VS 15-2WS replaces a variety of previously offered VS 15 packages. The price for the VS 15-2WS with 1M byte of memory, a 76M-byte fixed disk, two 4230 workstations, a 16-port serial controller, a

fixed disk controller, operating system, assembler program and 360K-byte diskette drive, is \$21,000, the vendor said.

In addition, Wang has reduced prices of some 4200 series VS workstations. The 4230 64K-byte workstation supporting data and word processing, has been cut \$400 to \$3,400.

The cost of a 4205 model, a 32K-byte DP workstation, has been cut \$300 to \$2,450. And the price for the 4230 workstation for remote DP and synchronous communications, has been cut by \$250 to \$2,250, according to the company.

Finally, the price of the Local Communications Option, allowing the Wang Professional Computer to serve as a VS workstation, has been reduced by \$400 to \$1,600, the company said.

More information on the VS announcement is available from Wang, located at One Industrial Ave., Lowell, Mass. 01851.

EFT Expo set for March 22

SAN FRANCISCO — The Electronic Funds Transfer (EFT) Association has announced that the EFT Expo, its annual convention and exposition, is scheduled for March 22-24 at the Fairmont Hotel here.

The convention will concentrate on the point-of-sale market, and point-of-sale strategies for supermarkets, convenience stores, department stores and petroleum markets. Other topics are videotex services, EFT standards, telecommunications options and security.

The registration fee is \$460 for an EFT Association member, \$625 after Jan. 15. For a nonmember, the fee is \$675, \$650 after Jan. 15.

The EFT Association can be reached through P.O. Box 66300, Washington, D.C. 20035.

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(Continued on page 13 of Computerworld)

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Management found impeding OA implementation

By Mitch Botta
Of Washington Bureau

WASHINGTON, D.C. — A national field study has found that 75% of the 110 business and nonprofit organizations examined are experiencing big problems with office automation because of insufficient management attention to people problems, such as user training and ergonomics.

The two-year study, conducted by the nonprofit Educational Fund for Individual Rights, was released at the organization's National Conference on People, Organizations and Office Technology, held here Dec. 12-13.

SANTA from page 1

Makes that three, St. Nick. "I'll take a CPU upgrade from our IBM 3083-E to a 3083-J," said John Harodecki, DP director for St. Louis-based Oak Air Lines, Inc. "We are really starting to run out of CPU cycles. If we can solve that problem, we will have the world licked — at least for a while."

Goeh, Santa, I hate to badger you about upgrades but... "I am easy to please. All I want for Christmas is a bigger CPU," said David Dowie, computer systems manager for the Oregon Transportation Department in Salem, Ore. "We have an IBM 3083, but a 3081-E is what I would really like. We always seem to be out of gas; we never have quite enough capacity to meet our user demands."

Hey, Mr. Claus, how about some help with all these micros? "I would ask Santa to put control over all the micros in the accounting department in DP's hands," said Robert Bell, director of distribution and MIS for Beech-Nut Nutrition Corp. in Canajoharie, N.Y. "While I am in favor of micros, I think we have created a situation where our accountants are becoming keypunch operators and programmers. They are building their own data bases that are not tied to the mainframe. We are heading for trouble by creating one-person DP departments. That problem has to be addressed."

Same for me, Santa. "What I would like for my DP shop is a clear direction on where micros are going and how they are supposed to fit into the total picture," said Ronnie Barker, DP manager for Levi Strauss & Co. in Little Rock, Ark. "Everybody is saying 'I want one, and I want to do this and that with it.' But there seems to be a lot of confusion about what the real role of the micro will be. We need

"Most organizations find that implementing office automation is much harder than implementing DP was [many years ago]," remarked Dr. Alan F. Westin, president of the Educational Fund.

"Too many applications are vendor driven rather than user designed," he said.

The researchers found such problems as the following:

- Inefficient strategic planning by top management and failure to involve the personnel department in such OA issues as job design, work satisfaction and performance monitoring.

to get some direction, maybe in the form of policies and procedures.

That's all well and good, St. Nick, but what I really need is some more people. "I would ask Santa to make Cheryl Ties for me," joked Sammy Sawaya, director of information processing and international MIS for Mattel Toys, a division of Mattel, Inc., in Hawthorne, Calif. "But seriously, I wish for a better trained group of people, including better managers and shift leaders."

Longer days needed

Yes, Santa, that's it — more people! "I want more personnel to do the job," said Loren Miller, MIS facilities manager for the Nevada Power Co. in Las Vegas. "We are constantly strapped for time to do our work. We need more folks, including systems and applications programmers, to do our work or more time to use our people. Maybe we need longer days."

Wait, wait! Aren't you forgetting something important, Santa? What about our communications needs? "What I would like most is to get hold of some cleaner communications lines," said William Winter, vice-president, MIS, for Fanny Farmer Candy Shops, Inc. in Bedford, Mass. "With some better communications lines we would not have to do as much retransmission of data as we have had to do in the past."

But what about me, Santa? Can you bring me reliability for Christmas? "I want 100% uptime," said Donald Pressley, DP director for the Oakbrook Trust Corp. in Oakbrook, Wis. "When we have downtime, our 120 users get awfully angry. Also, we are experiencing some growing pains and response time is sometimes a problem. So, Santa, if you could give me one-half-second response time on all our applications, everybody here would be very happy."

- Inadequate resources for training and orienting new OA users.

- VDT work environments that do not meet ergonomic standards and weak management communication to users about VDT health and safety issues.

- Low levels of employee involvement in implementing new office automation technology, which unnecessarily raise employee fears and thus undercut OA implementation.

More than 110 site visits

To carry out the field study, the researchers conducted more than 110 site visits to major companies and institutions and contacted approximately 1,100 employees, 650 managers and executives, 55 information systems managers and 40 union leaders.

"The Educational Fund for Individual Rights is a nonprofit research foundation in New York that specializes in privacy and labor management issues."

The \$275,000 field study was supported by grants from IBM, Hewlett-Packard Co. and NCR Corp.

Employee OA complaints "unmanageable"

"The good news is that employee complaints [about OA] are manageable," Westin said at the conference. He said the research showed that about 10% of the sites had excellent "people-technology programs" to handle the human resource implications of OA.

tions of OA.

The effective OA programs featured a long-range, strategic plan, employee involvement and training and ergonomic standards for VDT workstations, Westin said.

Only 5% to 10% of the sites visited had satisfactory ergonomic work conditions — such as adjustable chairs and proper lighting. "While some employees do worry about health effects from VDTs," the researchers said, "the central health issue for office workers is the serious physical discomfort and harmful stress they experience in intensive VDT use as a result of poor job design, ergonomic conditions and management practices."

"Big Brother surveillance"

The Educational Fund researchers said that electronic work monitoring is a growing concern among nonunion and union employees, yet only one-third of the organizations visited had developed work performance standards that avoided employee feelings of "Big Brother surveillance."

Westin, professor of public law and government at Columbia University, noted that while no legislation regulating VDTs has been enacted so far, future legislative activity will depend on whether employers develop and implement good VDT management practices.

"Society will not let management apply OA oppressively," he said.

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SCS conference set for Jan. 24-26

SAN DIEGO — The 1985 Society for Computer Simulation (SCS) Multiconference will be held January 24-26 at the Bahia Hotel here.

The multiconference includes four separate conferences: Modeling and Simulation on Microcomputers; Computer Simulation in Emergency Planning; Distributed Simulation 1985; and Artificial Intelligence, Graphics and Simulation.

In addition, several professional development seminars will be offered

at the multiconference.

The conference prices range from \$155 to \$195, depending upon registration (advance or after Jan. 1) and membership in SCS. One-day professional development seminars are \$130 in advance or \$150 at registration at the conference. The two-day seminar costs \$200 in advance, \$250 at the conference.

More information can be obtained from SCS, P. O. Box 2228, La Jolla, Calif. 92038.

NEWS

Private lines used to bypass local telephone rates

WASHINGTON, D.C. — In a report issued last week, the Federal Communications Commission said that large-volume communications users are making extensive use of private lines to bypass usage-based local telephone rates. The report on bypass, in the works for the past year, is the first to note that private lines can be considered a form of service bypass, as opposed to facility-based bypass in which users directly link to long-distance carriers.

Users are stimulating public telephone networks with private-line

hookups that are provided by local telephone companies where usage is not measured for price purposes, the report said.

The FCC raised the possibility that, through regulation, it might be forced to raise tariffs on private lines to discourage inefficient use of local telephone networks.

Facility-based bypass serious threat

The report also said that facility-based bypass is a more serious threat to local telephone companies in the long run, and it predicted that this

type of bypass will continue to grow.

In other action, the FCC, as expected, approved last week the levy of a \$1 monthly charge for residential telephone customers as part of its access charge plan (CW, Nov. 26). It is scheduled to go into effect in June and will increase to \$2 per month by June 1986.

The FCC also said it will allow state regulators to add an additional 35% on top of the residential charge. In addition, the commission will give leeway to telephone companies to provide business customer discounts

If it appeared that the \$6 multiline business access charge is promoting bypass of the local telephone company facilities by large-volume business users.

According to the FCC, the residential access charge will raise an estimated \$1.8 billion that will be applied to "dollar-for-dollar" reductions in long-distance rates by AT&T Communications, which will see the amount of its subsidy to local exchanges lowered. The FCC has estimated this should translate to a 6.5% drop in long-distance fees.

Speaker claims bypass threat more smoke than fire

By James Connolly
CW Staff

FRAMINGHAM, Mass. — The bypass threat is more smoke than fire and will remain limited if local telephone companies focus on improved service and appropriate pricing, advised a Westinghouse Electric Corp. executive at a recent regional business conference here.

"At this point, there is an awful lot of smoke and a little bit of fire. To some extent, bypass has been used as a whipping boy," Robert E. Bennis, manager of communications for the Pittsburgh-based company, said in a speech to the New England Council, Bennis, who also serves as chairman of the International Communications Association (ICA) Public Policy Committee, added that the bypass issue has been used to justify requests such as those for local access charges and

for rate hikes on the basis of self-serving studies.

Bennis, who discussed his own company's \$36 million, five-year-old bypass project, said, "Much of the significance assigned to bypass has been indicated by the concerned parties in the issue."

According to Bennis, an independent ICA survey indicated that while most large companies have examined the bypass possibility, respondents said it was not a significant telecommunications opportunity, particularly with regard to saving money.

He said that even companies, such as his own, that run hybrid bypass systems using private microwave links and cable television wiring will usually rely to some degree on local telephone wiring like that from Bell Telephone Co. of Pennsylvania. He added that many of those companies using bypass are only using it for narrow applications.

He cited that possible reasons for bypass are that regulatory bodies and telephone company policies have previously discouraged innovation, that disinvestment has meant some reliability problems, that local telephone companies cannot or will not provide high-speed data capabilities, that local geography may favor bypass technologies such as microwave and that annual or near-annual telephone company rate increases make it economically worthwhile.

He said that factors against bypass may include the telephone companies' new responsiveness to innovation, a customer's lack of capital, the inability to obtain frequencies, the inability to acquire microwave tower sites, the lack of technical expertise among some bypass vendors and the loss of the security blanket associated with the former Bell system.

Consultant offers guidelines for dealing with deregulation

By James Connolly
CW Staff

FRAMINGHAM, Mass. — The first year after the AT&T divestiture has been rough.

Companies have been forced to cope with disruption and have not received many of the supposed bene-

fits, charged a consultant at a regional communications conference here.

William Page Montgomery, vice-president of Economics & Technology, Inc., said, "I think the confusion factor in 1985-86 [will] be less than it was in 1984."

"But there still will be a

confusion level or noise level behind telecommunications that [will have] to be dealt with."

He was speaking at a communications seminar sponsored by the New England Council, a regional business organization.

Advice for users

Montgomery offered his advice for users dealing with the effects of deregulation and divestiture.

He listed the following points as keys to users developing a new focus on communications in a deregulated environment:

- Staffing up telecommunications departments to a level comparable to data processing department staffing.
- Auditing communications resources because some vendors cannot be trusted to keep accurate records concerning items such as the number of telephones by the status of office moves.
- Establishing independence from vendors by adding value to communications resources where possible.
- Trying private instead of public regulation by carefully contracting for equipment and service.
- Establishing a business plan and a strategic plan by

looking ahead to where the company will be and what its telecommunications requirements will be in five years.

Montgomery noted that some of the continuing con-

fusion is due to where the technical staffs at the Department of Justice and the court of U.S. District Judge Harold Greene, who are overseeing divestiture.

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NEWS

Greene OKs holding companies' expanded services

WASHINGTON, D.C. — U.S. District Judge Harold Greene, who presided over the court-ordered split of the seven regional holding companies from AT&T, has approved the regional holding companies' request to enter new lines of business outside their regulated telephone service.

The regional holding companies had filed requests for waivers from the court provisions barring them from entering competitive markets, seeking to offer such services as computer sales, foreign operations, real estate telecommunications services and office products.

Less than a year after the official breakup of the AT&T monopoly on Jan. 1, 1984, Greene granted approval to the 15 waiver requests but added several conditions designed to prevent anticompetitive abuse.

Waiver requests opposed

The waiver requests had been vigorously opposed by computer equipment vendors, TRW Corp. and the North American Telecommunications Association, representing the independent interconnect industry.

While permitting the regional holding companies to expand their service offerings, the court will require them to establish separate subsidiaries to offer the services, finance the businesses independently of the parent company, establish

monitoring standards and limit the investment in the subsidiary to 10% of the regional holding companies' net revenues.

The new lines of business the U.S. District Court approved are the following:

- Bell Atlantic's provision of equipment leasing through a subsidiary, Tri-Continental Leasing Corp., that will provide third-party financing by purchasing the equipment for subsequent lease. This would include telephone equipment such as private branch exchanges, word processing, data processing and photocopying equipment.

- Bell Atlantic agreed not to permit Tri-Continental to finance the purchase

and leasing of Bell Atlantic equipment. It also agreed not to lease equipment or offer information services or long-distance services through Tri-Continental.

- Permission for Bell Atlantic to acquire the Sorbus, Inc. services division of Management Assistance, Inc. to provide computer maintenance services.

- Five requests for foreign business ventures, such as consulting, and cellular radio ventures proposed by Pacific Telesis Group, Nynex Corp., U.S. West and Ameritech Corp.

- Permission for U.S. West and Ameritech to provide real estate services, such as installation, consulting and contracting. They are barred,

however, from offering shared tenant service for buildings.

- Permission for Nynex, Bell South and Pacific Telesis to enter the office products business, subject to conditions barring them from jointly marketing products with their telephone service and prohibiting the office products organizations from procuring goods and services for resale through a subsidiary that also offers regulated telephone service.

While granting the waivers, Greene asked that the Department of Justice, which had signed off on the proposed waivers, "to be particularly vigilant in the exercise and monitoring... of these enterprises... if violations are detected."

Upcoming meet to scrutinize security topics

BAL HARBOUR, Fla. — The 1985 National Insurance and Protection Conference, a session on security and risk management sponsored by the American Bankers Association (ABA), is being held at the Sheraton Bal Harbour here Jan. 29 to Feb. 1.

The conference will include 41 sessions, as well as discussion groups and exhibits. Session speakers will include Dr. Patricia Zigarmi, vice-president of Blanchard Training and Development, Inc., on "Applying the 'One Minute Manager' to the Banking Industry"; and Dr. Michael Mascon, dean of the College of Business Administration at Georgia State University, on "Management: New Perspectives from an Old Foundation."

Other participants include Boris Melnikoff, corporate director of security for First Atlanta Corp.; Garard Kenna, president of Profit Protection, Inc.; and Marshall Corry, president of the Colorado National Insurance Agency.

Subjects to be addressed include access control systems, shared networks, encryption, risk management, information systems, physical security and data security. In the area of physical security, hostage taking and ATM security will be addressed.

Registration is \$486 for ABA members and \$596 for nonmembers. More information is available from the ABA, Security and Risk Management Division, Attn: Vicky Barr, 1120 Connecticut Ave. N.W., Washington, D.C. 20036.

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NEWS

Policeman walks DP beat to squelch computer crime

By Donna Raimondi
CW Staff

MINNEAPOLIS — Last year, a financial institution was fired 30 employees in the first 10 months of the year for using the company computer system to steal money. When asked why criminal charges had not been brought against the employees, the company said, "We've handled it within."

This attitude — expressed in private to a police officer who specializes in computer crime — is common among companies that will not publicize such incidents because they are afraid to lose customers or release sensitive information to the police, said Robert Huber of the Minneapolis police department.

Such secrecy is one of the reasons why more money does not go into developing computer crime expertise in police departments, Huber said. "If businesses aren't reporting the crimes, it is hard to justify spending money on training," he said. "Law enforcement really needs full cooperation from a business reporting a computer crime," he added.

Huber, a 10-year veteran of police work, said he took a three-month leave to study computer programming seven years ago and was invited by the Federal Bureau of Investi-

gation to join its computer crime training classes in Quantico, Va., two years ago. In addition to computer crime investigation, Huber is responsible for the police department's Data General Corp. Eclipse 230 computer system and software acquisition recommendations. He also writes programs, monitors the equipment and trains police officers in terminology and evidence procedures for computer-related crimes, he said.

Off duty, Huber teaches nationally on computer crime investigation to groups. He will soon train IRS agents in the investigation of white-collar computer crime, he added.

"Huber has made us more aware of our security efforts, and we are now exploring how to secure our environment [better]," said Sandra Evans, an office equipment manager at the Wilson Jones Co. in Chicago who has consulted with Huber. Evans said Wilson Jones was impressed enough

to invite Huber to speak on computer crime and security measures at the 1984 Comdex/74 show.

FBI statistics revealed some bad news, Huber said. Only 1% of computer crimes are even detected, and of that number, only 12% are reported to police departments, he said. Only 3% of the reported computer crimes end in conviction. This means there is one chance in 27,000 that a computer criminal will go to jail, he added.

Some businesses are relying on their information systems to such an extent that without their computers, they would be out of business in a few days, Huber said. The way he sees it, businesses are open to attack on two fronts — the malicious hacker and the criminal. Malicious hackers are few in number, he said. Most hackers are playing telephone games and are not even aware of whose system they are on when they gain access, he said.



Huber

Criminals are people who steal money or information through the system, like the maintenance technician who placed diagnostic equipment on a system, copied the customer's account information and sold it to a competitor, Huber said.

"Huber serves as a method of getting our foot in the door of the computer thief world," said Pat Parrell, deputy chief. The Minneapolis police were totally unaware of how to deal with computer crimes before Huber's training, Parrell said. Huber gives the business community a sense that they can be helped in as confidential a way as possible, he added, especially when it comes time to make out a crime report. Businesses dislike filing such reports, but they must do so if the crime is to be investigated efficiently, he said.

It is much easier to secure a system to prevent abuses than to try to investigate a crime after the fact, Huber said. Businesses should take several security ideas and put a package together, he said. The more sensitive the information, the more sophisticated the security package should be, he added. It should consist of devices, guidelines, procedures and — if the company is large enough — a full-time security person.

Inmate allegedly enters system to abbreviate sentence

By Kathleen Burton
CW West Coast Bureau

SAN JOSE, Calif. — Thanks to an unattended IBM terminal, an inmate at a Santa Clara County prison almost completed his way out of jail in time to make it home for Christmas.

Scott Robinson, a truck driver serving a one-year sentence for stealing video games, allegedly memorized the logon codes for the Santa Clara County Sheriff's Department IBM terminal by looking over the shoulders of jail officials as they looked prisoner's records. Robinson allegedly logged on to the computer and altered his own release date from Dec. 31 to Dec. 5.

In an interview with jail officials, Robinson, a computer neophyte, said, "It's not that hard to get into computer files," but refused to admit he had done so.

Jail officials are investigating the possibility that Robinson may also have accessed 1,200 other release records and entered files in the statewide computer system at the Criminal Justice Information Center in Sacramento, Calif., a data network that contains state criminal and motor vehicle records. Officials are also trying to discover if other prisoners were released up to a year before their scheduled release dates, as Robinson has claimed.

The computer-aided escape attempt was discovered when Robinson began mentioning his release

date to other inmates. A deputy became suspicious and checked written records, said Capt. Don Tamm of the sheriff's department. Tamm said that the computerized records are used to notify jailers of upcoming release dates but are normally checked against a written log. "Robinson never would have

sheriff's deputies used it.

To log on to the computer, a four-letter code and the inmate's booking number must be entered. Two codes must be changed before the computerized release date can be altered, and another key is then used to record the change, Franza said.

Lt. Jim McLarny of the sheriff's department said that since Robinson's alleged joyride through the data files, security precautions have been stepped up at the facility, which processes 75,000 prisoners a year. Trustees are no longer allowed in the booking area, and deputies have to remove their keys from the computers when they are not in use, he said.

Don Parker, a senior management consultant at SRI International, Inc. in Menlo Park, Calif., said the incident is a classic example of how people treat computers too informally, without understanding their power to do harm. Two basic security principles were violated in the case, Parker said: Only trusted people should have access to sensitive computing areas, and unique passwords should always be assigned to authorized individuals using a terminal.

Officials are currently deciding whether to bring charges against Robinson, who they claim plans to study computer programming after his release. "Looks like Robinson has a good future in programming," a jail administrator said.

People treat computers too informally, without understanding their power to do harm.

— Don Parker, SRI International, Inc.

made it past the sign-out window," Tamm added.

Lt. Steve Franza, commander at the Elwood Detention Center in Milpitas, Calif., where Robinson is currently being held, said Robinson held a "medium-security" status, which allowed him access to the medium-security misdemeanor booking area of the jail, where he swept floors and fingerprinted new inmates. The area where Robinson worked is next to the sheriff's law enforcement telecommunications system IBM terminal, Franza said, so Robinson was able to get a close look at the terminal as

ACM Computer Science Conference slated for March 12-14

NEW ORLEANS — The 13th annual Computer Science Conference of the Association for Computing Machinery (ACM/CSC '86) is scheduled to take place here from March 12-14.

Among those scheduled to speak at the ACM/CSC '86 conference are John Darringer, Ph.D., of the IBM Thomas J. Watson Research Center. Also scheduled to speak is Donald E. Thomas, Ph.D., of the Department of

Electrical Engineering, Carnegie-Mellon University.

The conference's first keynote address will be delivered by Gerald Edgerton, Ph.D., who is a member of the computer science department at the University of California at Los Angeles.

Conference topics

The topics to be addressed by con-

ference speakers range from "Production Logic Synthesis" to "Supercomputers and Distributed Computing."

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Registrations may be addressed to ACM/CSC '86, Dr. Cathy Jo Linn at the Computer Science Department, University of Southwestern Louisiana, P.O. Box 44330, Lafayette, La. 70504.

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COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

NEWS

Virtual processor eases conversion to Sperry 1100/70

By Bryan Wilkins
OW Washington Bureau

WASHINGTON, D.C. — Announcing the demise of product support for Sperry Corp.'s VS 9 system, used in the public school system here, could have been rather traumatic since the system has been in place for 14 years with happy users. However, a bridging product, called an attached virtual processor, came to the rescue, permitting continued use of VS 9 data files on a new Sperry 1100/70.

According to William Stewart, director of the District of Columbia public school system operational support unit, other Sperry VS 9 users were moving to IBM 570s because they were reluctant to switch over to the more rigid 1100 series. Luckily for the District of Columbia schools, and perhaps for Sperry and the preservation of some of its business, Sperry quickly produced its bridging product — an attached virtual processor that enables the software codes running on VS 9 to be transported virtually free of programming changes to the Sperry 1100 operating system.

Stewart said that the VS 9 users in

the 1100 took six months. According to Marvin Raines, director of the District of Columbia public school system's Division of Information Resource Management, the successful transition was accomplished through planning and looking at other installations' experience before the switch was made.

Instead of using turnkey or off-the-shelf software application generators, the Division of Information Resource Management found that it had the in-house programming resources to learn the Mapper system. One junior programmer who was able to master the changeover quickly was a recent graduate of a computer learning school in the Washington, D.C.,

area, Raines said.

"We found that turnkey vendors were willing to come in and do the job for us, but they wanted to double the cost at the same time," added Stewart, explaining why the school system relied on in-house resources.

However, the installation of the Sperry attached virtual processor made the transition to the use of the 1100 from the 90/80 much easier in that the existing data storage file could be read by the 1100 in their native mode and be accessible as a virtual memory system from the disk drives, Stewart said. But the plans call for the removal of the attached virtual processor from the premises sometime in late summer of 1985,

when all the District of Columbia public school system files have been transferred to the 1100 system.

Raines said he is proud of the technology conversion that has been carried out in his shop and even prouder that it was done quicker than expected with the Mapper system, which is not usually used for software program generation. "No one else has taken the time or effort to do it. It's unusual," he said of the eight new applications programs that were transferred in less than a year.

Yet every success brings some new demands. Data requests have jumped now that the previously cumbersome data bases have been merged, Raines reported.

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'No one else, I believe, has taken the time or effort to use [Sperry Corp.] Mapper in the ways we have.'

—William Stewart, director, District of Columbia public school system operational support unit

his public school system are relatively happy with the new 1100, which is running some unusual applications under the proprietary Sperry Mapper system. While the termination of support for the 90/80 was a major factor forcing change, the shift to the 1100 was equally necessitated by the changes in and greater demands on the public school system's data processing needs.

"No one else, I believe, has taken the time or effort to use Mapper in the ways we have come up with," said Stewart, who reported that the school system is now running one data base where five were present before. The combined data base management system, called Resource Management and Control System (Remics), is now running on the 1100 and was written by in-house programmers using Mapper. It handles financial reporting requirements of all the schools, as well as all personnel management records for students and teachers.

Next year, Remics will add payroll records, attendance and student grade records as well as the students' daily classroom schedules. All the applications programs will be developed internally, Stewart reported.

"Mapper is a tremendous tool for application generation," commented Stewart, who said that the new on-line data base is now being used in all sorts of report writing where previously batch runs on individual data bases were required.

The shift over from the 90/80 to

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TANDEM

NonStop Transaction Processing

NEWS

Unix standard expected to push Japan ahead of market

By Randall Litchfield
Special to CW

One question that can never be far from the minds of Americans is: When will Japan train its big guns on the U.S. computer market, quickly becoming No. 1 by inundating it with high-quality, low-priced products as it did with cars and televisions? It is not that Japan has not

tried. From mainframes to micros, Japan's large computer companies have sought the elusive U.S. market foothold needed to become major contenders but have done so mostly in vain. According to International Data Corp. (IDC), the Framingham, Mass.-based research house, the Japanese are a long way from brushing aside 35 years

of U.S. leadership in the computer industry. U.S. firms still control about 76% of noncommunist information processing and, outside of the Pacific Basin, the Japanese share is less than 10%.

The fact that Japan has not scored a marketing coup surprises many. The country's enormous vertical manufacturing facilities and

technological and financial resources make it perfectly suited to crank out the standard computer items — which are basically not any more than technically difficult than cars and videocassette recorders.

Unlike those items, however, computers have yet to form a mature market where standards are widely accept-

ed. What has stood in the way of the maturation process has been the lack of standardized software. And what might well mature the market is a hurry in AT&T's Unix. Unix could potentially tame an explosive market, and the Japanese could very well direct their energies here.

The QA market has in fact been growing by leaps and bounds — as much as 40% annually in the U.S. on a 1983 base of \$13 billion. Stephen McClellan, an analyst with Salomon Brothers of New York went as far as to say that QA is not simply another profitable niche for the computer industry but the future of the industry itself.

Japan could be positioned to pick up the most pieces in the widely predicted computer shakeout. As the industry matures, success increasingly depends on vertical integration. If there is one thing abundant on the islands of Japan, it is strong, well-organized and vertically integrated companies.

Japan has succeeded in certain marketing areas already and has enjoyed its first computer trade surplus with the U.S. in 1983.

However, Japanese success has been in the sale of components, not systems. As an OEM, it lacks all of the marketing clout used to effectively in dominating other industries. Instead of being able to offer leveraged sales of the office voice and data products already available from Japanese manufacturers, the Japanese are forced to sell to domestic distributors — minus the market presence and the meaty profit margins. Anyone familiar with Japanese marketing techniques in the automotive and consumer electronics industries will know that this simply is not the Japanese style of doing business.

According to the Gartner Group, Inc., Japanese manufacturers still lack an understanding of North American office needs to offer any real wide-scale competition. However, leading Japanese companies, including NEC Corp., Fujitsu Ltd. and Hitachi Ltd., are targeting the integrated office and will likely become significant by the end of the decade. The reason, they said, will be that software will have been better defined and will permit a commodity approach to the purchase of hardware. By then, the Gartner Group also expects Japanese distribution and maintenance organizations will be sufficiently well established.

Litchfield is managing editor of Computer World Canada.

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NEWS



**INTERNATIONAL
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AUSTRALIA

PETONE — After running its data processing operations in-house for 20 years, Unilever New Zealand Ltd. has transferred its DP operations to an outside service bureau. Faced with the cost of upgrading its 4M-byte IBM 4331 and a high staff turnover, Unilever has opted to off-load to Idaps Computer Sciences New Zealand.

KNOWFIELD — A 28% price advantage and a better upgrade path were cited as the two factors that influenced the Victoria retailing cooperative Composite Buyers Ltd. to abandon IBM in favor of National Advanced Systems Corp. (NAS).

Composite Buyers chose the NAS 6060 to replace its IBM 4341 Model 2 because the NAS system offered the same memory capacity and three more channels for less than 76% of the price of the existing IBM rental, a spokesman said. Composite Buyers is a group of 400 grocery retail outlets in Victoria.

CROWS NEST — Telecom Australia is suffering from what is being called "a massive brain drain." The company has been losing its communications experts at the rate of about 150 employees a year, mostly to banks, sources said.

MELBOURNE — One of the most successful partnerships in the history of the Australian computer industry has broken up, insiders reported. Brian Johnstone, joint managing director of Computer Power Group Holdings, has sold his 33.3% share for an undisclosed sum to the other two shareholders, Rupert Murdoch's News Ltd. and Roger Allen, Johnstone's former partner, leaving the two with 50% holdings each.

FRANCE

PARIS — Groupe Bull has unveiled an addition to its Micral range of microcomputer workstations. The new two-workstation Model 90-20 comes with 256K bytes of memory and up to two 600K-byte diskette units and can accommodate a 5M- or 10M-byte fixed disk, the vendor added.

The machines can run under Microsoft Corp.'s MS-DOS and Digital Research, Inc.'s CP/M operating systems. Pricing starts at \$2,760 for the Micral 90-20.

PARIS — Telle Alcatel, Groupe Bull and financial investors lead by Credit du Nord Bank have joined forces to create a new microcomputer and peripherals company here.



The company, called Djintal, will manufacture and market equipment that is compatible with the French Minitel terminals; has value-added features such as automatic dialing, call management and optimization of use of telephone lines and servers; and can access videotex services.

Directing the new company will be Jean-Pierre Talvard, the former director of product development at Compagnie Generale d'Electricite.

JAPAN

TOKYO — In a flurry of announcements, Fujitsu Ltd. has introduced mainframe system called the Pacom M-3800, a cartridge tape drive called Pacom 6475 and an enhanced version of its OS IV F4MSP software.

According to a company spokes-

man, the M-3800 offers a main memory of 64M bytes, expandable to 128M bytes; a potential memory of 20 bytes, and up to 64 ports. It reportedly can be leased for \$76,000/mo and comes bundled with the vendor's enhanced software.

The OS IV software now features the ability to switch back and forth on-line and off-line; comes with the vendor's Advanced Information Manager software, which can handle 400,000 transactions an hour; features half the response time of the former version; and supports up to 3G bytes of memory, according to Fujitsu.

Finally, the Pacom 6475 cartridge tape drive has a 2.54 byte/sec response time, 2800-byte capacity, 18 tracks and 32,000 bit/in. density. It can be leased for \$2,330/mo, the vendor said.

UNITED KINGDOM

LONDON — British software maker Aregon International will supply Japan's Aregon industrial giant Mitsubishi Electronics Corp. with \$3 million worth of videotex equipment during the next three years under the terms of a recently signed agreement. Mitsubishi will distribute Aregon products in Japan with options to develop further potential markets in other Far Eastern regions. Aregon is customizing its videotex products to accommodate the Japanese language.

LONDON — Nixdorf Computer AG has announced two additions to its Comet software line: Comet International and Comet Oil. The company also announced the creation of an International Oil Division here.

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NEWS


**TURNAROUND
TIME**

Larry Long

Q Computer terminals and microcomputers are now commonplace throughout the company, and we order five to 10 more every month. As more and more applications go on-line, people with no typing background whatsoever are asked to use the computer to enter not only numeric data but text as well. In our training sessions, we find that some are frightfully slow, and we wondered if you could recommend a good microcomputer-based package for intensive keyboard training.

I do not recommend specific hardware or software products. However, any of the major packages should

prove adequate for your needs. Besides training software, you might also consider purchasing Dvorak keyboards for hunt-and-peck keyboarders who refuse to learn touch-typing skills. With 70% of the alpha keystrokes on the home row, a novice keyboarder can significantly increase his productivity with the Dvorak system.

Some companies have already implemented Dvorak keyboards in their word processing pools and are experiencing 50% and higher increases in productivity. I expect that within a couple of years, we will be ordering as many Dvorak keyboards as we do Qwerty keyboards.

Q My 10-year career has revolved around personal services. During the last year, I have worked closely with

several programmers who are implementing a new system for us. Lately, I find myself more interested in their work than in my own. I spoke with their manager about transferring to his group, and he encouraged me. He seems to think that I could learn to be a good programmer. I'm about to take him up on the offer but am still concerned whether I have the right type of personality. Is there a stereotype for a programmer's personality?

Contrary to popular belief, programmers aren't stereotypical. I've worked with hundreds of past and present programmers, and I say without reservation that they are a truly varied lot.

However, I will say that most good programmers possess certain attributes. They can be described as perceptive, persistent, patient, picky and productive.

Q During the last 20 years, I've progressed steadily in a family-owned company to the point that I now manage a 30-person data center. During the last few years, business has gone sour, and we are beginning a third year with no pay increases. I've lost all my best people and have just about decided to jump ship myself.

I wanted to check with you before I began applying for other jobs. I never finished my bachelor's degree. I could complete the degree in the 11 months if I go full-time. I'm in my early 40s but am willing to return to school if the degree is absolutely necessary.

With business, my current salary is about \$60,000. Do you feel that my lack of a degree will be a detriment to my finding an equal or better position?

At least 95% of the positions to which you aspire will have a baccalaureate degree as a minimum educational prerequisite. In the past, companies have waived the education prerequisite for truly outstanding people, but this happens infrequently today.

In answer to your question as to whether you should return to school, by all means, yes. With your experience and tenure in the business, the degree area is not nearly so important as the parchment.

Q We are a small company of slightly fewer than 1,000 employees. Currently, our centralized MIS division services our four locations, all of which are in the same state. Against all of my arguments to the contrary, our steering committee voted to decentralize and has asked me to draw up a plan to accomplish the move. I feel that such a move is premature and will hinder our efforts to be responsive. Is there anything I can say or do to reverse his hasty decision?

There is no such thing as pure decentralization of information services. You can distribute people, hardware, software and data, but somebody has to mind the store, whether you choose geographic or functional decentralization. Is your committee suggesting that each site maintain separate data bases? Who will set standards, ensure compatibility and establish policy?

I've long been a proponent of moving processing capability closer to those who use it but not at the expense of integration and coordination. Approach the steering committee with a plan for what I call "centralized decentralization." That is, outline a plan that distributes computing resources according to the committee's wishes, but accompany it with an organizational structure with control authority for coordinating the information services function.

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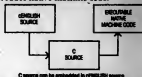
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SAMPLE cENGLISH PROGRAM

IDENTIFICATIONS
MODULE: Minname
AUTHOR: bob
DATE: 8/28/84
REMARKS: Sample cENGLISH program that adds first names to a file
END IDENTIFICATIONS

GLOBALS
FIXED LENGTH 1 one
FIXED LENGTH 15 frame
END GLOBALS

MAIN PROGRAM

```

BEGIN
  CLEAR SCREEN
  SET ECHO OFF

  USE "NAMES"
  VIEW BY "ID, FRAME" ASCENDING

  AT 23.1 SAY "Add a record? Y or N"
  AT 23.25 ENTER one USING " "

  WHILE one EQ "Y"
    CLEAR GETS
    AT 6.1 SAY "Enter first name"
    AT 6.20 GET frame
    READ SCREEN

    INSERT
      frame = frame
    END INSERT

    AT 12.10 SAY "Welcome to cENGLISH & frame"
    WAIT
    AT 14.10 SAY "Hit ANY KEY TO CONTINUE"
    STORE " " TO frame
    STORE " " TO one
    AT 23.1 SAY "Add another record? Y or N"
    AT 23.30 ENTER one USING "Y"
    CLEAR ROW 1 THRU 23

  END WHILE

  AT 12.10 SAY "That's all for now"
  UNUSE "NAMES"
  SET ECHO ON

END PROGRAM
  
```

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NEWS



CALENDAR

WEEK OF DEC. 30

JANUARY 2-4, HONOLULU — Hawaii International Conference on System Sciences. Contact: Nem B. Lau, Center for Executive Development, College of Business Administration, University of Hawaii, C-202, 2404 Maile Way, Honolulu, Hawaii 96822.

WEEK OF JAN. 6

JANUARY 7-8, KANSAS CITY, MO. — Discover Unix. Contact: Data-Tech Institute, P.O. Box 2429, Lakeview Plaza, Clifton, N.J. 07015. Also being held Jan. 10-11 in Boston, Jan. 14-15 in Houston and Jan. 17-18 in San Francisco.

JANUARY 7-8, HARTFORD, CONN. — Unix Systems Users Workshop. Contact: Don Florek, The Hartford Graduate Center, 275 Windsor St., Hartford, Conn. 06120.

JANUARY 7-8, DALLAS — Operating Systems: A Comparative Analysis. Contact: Data-Tech Institute, P.O. Box 2429, Lakeview Plaza, Clifton, N.J. 07015. Also being held Jan. 14-15 in Boston.

JANUARY 7-9, ARLINGTON, VA. — SAS Basics Course. Contact: SAS Institute, Inc., P.O. Box 8000, Cary, N.C. 27511. Also being held Jan. 9-11 in Tampa, Fla.; Jan. 15-17 and Jan. 23-25 in Cary, N.C.; and Jan. 23-24 in San Francisco.

JANUARY 7-9, NEW YORK — PC/Focus for Beginners. Contact: Julie Leonard, Advanced Infostructures, Inc., 475 Fifth Ave., New York, N.Y. 10017.

JANUARY 7-9, DALLAS — VM/SP Structures, Flow & Tuning. Contact: Betty Bruce, Goal Systems International, Inc., 5455 N. High St., Columbus, Ohio 43214.

JANUARY 7-10, NEW YORK — CICS Debugging. Contact: Syzed, Inc., 35 W. 35th St., New York, N.Y. 10001.

JANUARY 7-10, HARTFORD, CONN. — Designing On-Line Systems. Contact: Don Florek, The Hartford

Graduate Center, 275 Windsor St., Hartford, Conn. 06120.

JANUARY 7-11, HARTFORD, CONN. — CICS/VS Command-Level Coding Workshop. Contact: Don Florek, The Hartford Graduate Center, 275 Windsor St., Hartford, Conn. 06120.

JANUARY 7-11, RALEIGH, N.C. — Unix Workshops. Contact: Susanne Battista, Plum Hall, Inc., One Spruce Ave., Cardiff, N.J. 08822.

JANUARY 7-11, HARTFORD, CONN. — CICS/VS Job Control Language & Utilities. Contact: Don Florek, The Hartford Graduate Center, 275 Windsor St., Hartford, Conn. 06120.

JANUARY 8-9, SAN FRANCISCO — Integrating Multivendor Voice and Data Networks. Contact: Marilyn Chastoten, The DMW Group, Inc., 2020 Hogback Road, Ann Arbor, Mich. 48104.

JANUARY 8-10, CHICAGO — Corporate Electronic

Publishing Systems: A Conference/Showcase. Contact: Corporate Electronic Publishing Systems, Cahners Exposition Group, P.O. Box 3833, 900 Summer St., Stamford, Conn. 06906.

JANUARY 8-10, LOS ANGELES — Selecting a Local-Area Network. Contact: Marketing Manager, Technology Concepts, Inc., Old County Road, Sudbury, Mass. 01776.

JANUARY 8-10, COLLEGE PARK, MD. — Designing Interactive Comput-

er Systems: A Software Psychology Workshop. Contact: Conferences and Institutes Program, University College, University of Maryland, University Blvd. at Adelphi Road, College Park, Md. 20742.

JANUARY 8-10, CARY, N.C. — SAS Programming for New Computer Users. Contact: SAS Institute, Inc., P.O. Box 8000, Cary, N.C. 27511. Also being held Jan. 23-24 in Cary, N.C.

JANUARY 8-11, NEW

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NEWS

YORK — Vann. Contact: Syssed, Inc., 35 W. 36th St., New York, N.Y. 10001. Also being held Jan. 28-Feb. 1 in New York.

JANUARY 9-11, NEW YORK — Systems Network Architectures Concepts, Design and Implementation. Contact: Center for Advanced Professional Education, Suite 110, 1820 E. Gary St., Santa Ana, Calif. 92706. Also being held Jan. 21-23 in Los Angeles.

JANUARY 9-11, AR-

LINGTON, VA. — SAS Macro Language. Contact: SAS Institute, Inc., Box 8000, Cary, N.C. 27511.

JANUARY 9-11, HARTFORD, CONN. — Unix C Programming Language Workshop. Contact: Don Florek, The Hartford Graduate Center, 275 Windsor St., Hartford, Conn. 06180.

JANUARY 9-11, CHICAGO — Relational Data Bases. Contact: Software Institute of America, 8 Windsor St., Andover, Mass. 01810.

Also being held Jan. 14-16 in Atlanta.

JANUARY 9-11, WASHINGTON, D.C. — National Conference on Financial Management Systems for Government. Contact: Conference Manager, U.S. Professional Development Institute, 1630 Elton Road, Silver Spring, Md. 20903.

JANUARY 10, SAN FRANCISCO — TI Carrier Stratonics The New Networking Imperative. Contact: Marilyn Chasteen,

The DMW Group, Inc., 3030 Hogback Road, Ann Arbor, Mich. 48104.

JANUARY 10-11, ARLINGTON, VA. — SAS Report Writing. Contact: SAS Institute, Inc., Box 8000, Cary, N.C. 27511.

JANUARY 10-12, HOUSTON — The Essentials of Productivity Management. Contact: The Institute of Industrial Engineers, Continuing Education Program Department, 25 Technology Park/Atlanta, Norcross, Ga.

30002.

JANUARY 12-13, NEW YORK — CROS Command-Level Interactive. Contact: Syssed, Inc., 35 W. 36th St., New York, N.Y. 10001. Also being held Jan. 19-20 in New York.

WEEK OF JAN. 13

JANUARY 13-16, NEW YORK — Annual Convention and National Retailers Business & Equipment Exposition. Contact: National Retail Merchants Association, 100 W. 31st St., New York, N.Y. 10001.

JANUARY 13-16, HONOLULU — Seventh Annual Conference of the Pacific Telecommunications Council. Contact: Pacific Telecommunications Council '85, Suite 308, 1110 University Ave., Honolulu, Hawaii 96836.

JANUARY 14-15, SAN FRANCISCO — Taking Charge: New Directions for Data Entry Management. Contact: Marilyn Bodek, Data Entry Management Association, P.O. Box 16711, Stamford, Conn. 06906.

JANUARY 14-16, HARTFORD, CONN. — Personal Computers — Hands-On Workshop. Contact: Don Florek, The Hartford Graduate Center, 275 Windsor St., Hartford, Conn. 06120.

JANUARY 14-16, ST. LOUIS — DOS/VMS Internals, Debugging & Problem Determination. Contact: Betty Bruce, Goal Systems International, Inc., 5455 N. High St., Columbus, Ohio 43214.

JANUARY 14-17, ANAHEIM, CALIF. — Cadco West '85 Conference & Exposition. Contact: Morgan-Grampian Expositions Group, Two Park Ave., New York, N.Y. 10016.

JANUARY 14-18, WASHINGTON, D.C. — Software Engineering and Quality Assurance: A Statistical Approach. Contact: Dick White, George Washington University, Continuing Engineering Education, School of Engineering and Applied Science, Washington, D.C. 20052.

JANUARY 15, ARLINGTON HEIGHTS, ILL. — The Association for Information and Image Management Seminar. Contact: The Association for Information and Image Management, 821 N. Stratford Road, Arlington Heights, Ill. 60004.

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EDITORIAL

Time for hard line on software

By most indications, there are so many people engaged in using pirated or pilfered programs in the U.S. and elsewhere that, instead of punishing the offenders, perhaps we ought to award merit badges to those who actually pay for the software they use.

Figures made available recently by the Canadian Computer Dealers [CW, Dec. 17], although rough 'guesstimates' at best, nonetheless are shocking in their magnitude. According to the dealers up north, nine in 10 microcomputer programs in use in Canada are illegal — either pirated (copied and resold for profit) or pilfered (copied and distributed gratis for use within MIS departments).

The costs are obvious, both to vendors who lose massive amounts of revenue and to users, who eventually will pay for those lost revenues through higher software prices. And there is no reason to expect the situation is much different in the U.S.

Given that software piracy and pilferage will remain and likely proliferate as long as the crime is so easy and safe to commit (as in the hacking dilemma mentioned in this space last week), the obvious defense is for vendors to make it harder to copy a program. This should be about as easy as preventing teens from taping live radio concerts.

Nonetheless, vendors like Ashton-Tate, Lotus Development Corp., Microsoft Corp. and others that stand to lose their shirts to runaway piracy are banding together to attack the problem (CW, April 30). They have to. Apparently, not much help is forthcoming from the U.S. Department of Justice, which, according to one specialist in copyright law, hasn't undertaken a criminal prosecution for software piracy under the Copyright Act of 1976.

Computerworld strongly supports all efforts by the vendor community to combat piracy and piracy both in the courts and, ultimately most effectively, on the disettes themselves. But the greatest role in fighting this problem can be played by MIS and DP professionals from vice-presidents to entry-level programmers. It is from their ranks that have come the people most proficient in determining how best to utilize and proliferate software.



LETTERS

IBM Cabling System still a contender

I must object to the presentation of the article "IBM Cabling System falls short of mark, user says" ICW, Nov. 261.

The article places greater emphasis on the problems than on the virtues of the Cabling System. The headline strongly conveys the very false impression that we are dissatisfied with the capabilities and performance of the Cabling System, and that we are about to abandon the system already installed at Carnegie-Mellon University.

These are certainly not accurate impressions. While local-area network wiring is proving to be more expensive than we estimated four years ago, the IBM Cabling System as installed (in only one building) is completely adequate for the task and offers many advantages in versatility, configur-

bility and maintainability.

It remains under very serious consideration for campuswide installation.

Thomas W. Bajdak
Pittsburgh, Pa.

Computerworld welcomes letters from its readers. Preference will be given to typed, double-spaced letters of 150 words or less; they may be edited for clarity and brevity.

Letters should be addressed to Editor, Computerworld, Box 880, 375 Cochituate Road, Framingham, Mass. 01701.

DATA FAST

Five years ago

WASHINGTON, D.C. — A rewrite of the Communications Act of 1934 had been unveiled in the House of Representatives. Endorsed by all members of the House Communications Subcommittee, headed by Rep. Lionel Van Deerlin (D-Calif.), the bill heeded closely to advice from President Carter's chief telecommunications advisor, Henry Geller.

Ten years ago

WASHINGTON, D.C. — A compromise to guarantee the privacy of individuals' personal records kept in government data banks had passed both houses of Congress and was expected to be signed by President Ford before Christmas.

LONDON — Results of the benchmarking project run by the British government's Central Computer Agency had appraised some minis with power equal to or in excess of some full-scale mainframes, although the general pattern was "predictable."

COMPUTERWORLD

Donald E. Fagan

[illegible]

Walter S. Rattiner, Editor, Box 880, 375 Cochranville Road, Pottsville, PA 01761, 617/678-0100

[illegible]

VIEWPOINT

Exception reporting: Less can be more



THE DATA CENTER
John P. Murray

The idea of building exception reporting systems is not new. While a considerable amount has been written about the delivery of systems that key in on and report only the significant aspects of a particular situation, many organizations have accomplished little in this area.

Given today's technology, this is both unfortunate and unnecessary. Consideration of those factors that have historically worked against the delivery of such systems and implementation of some approaches that can prove helpful in overcoming those impediments can increase both client satisfaction and the productivity of the department. Why produce more than is necessary to get the job done?

Information processing clients often argue that, to be effective, reporting systems must produce minute detail. They feel the reports must cover all transactions in detail in order to meet their needs. A feeling exists among MIS clients, sometimes shared by members of the systems and programming staffs, that unless copious amounts of detail are produced, the system is of questionable value.

Part of this problem can be traced to prior constraints of both hardware and software. The limitations of the technology placed real restrictions upon the design of information processing systems. In many instances, the only practical solution was to produce voluminous reports that contained considerable detail. An objective review of many reports currently being produced will yield examples of this phenomenon. It is questionable if

those who receive these reports can find time to read, never mind use them.

There are indeed systems, many of them in the financial area, where considerable detail is required. An invoicing system is a good example. Both the organization's customers and members of the accounting and accounts receivable departments must know what was sold and delivered, when the sales occurred, and when, or if, payment was received.

Some information processing functions have so little credibility that clients insist upon great volumes of detail to satisfy themselves of the accuracy of the work being done.

Unfortunately, some information processing functions have so little credibility within the organization that clients insist upon great volumes of detail to satisfy themselves of the accuracy of the work being done. Clearly, in those organizations where such a situation exists, the original data must be cleaned up and better controlled before any campaign can be mounted to move to a more exception-oriented reporting environment.

There are areas in organizations where vast amounts of detail are not only not required, but may have a deleterious effect.

Forecasting, sales forecasting and results monitoring are attempted on too broad a scale. Too much data is manipulated, too much paper produced, and the result is frustration.

Consider a company with 50,000 active customers, 300 sales people and a product line of 800 items. This organization produces on a routine, batch basis, a number of sales reports. One set of

reports tracks all sales by salesman and by customer. Another set tracks all sales by product category, and a third set tracks sales by region. All activity for all sales made during each month is printed in each of the three sets of reports. This, of course, amounts to a massive amount of detail.

An analysis of these reports might show that approximately 80% of the total sales were made to 20% of the customers. Further investigation might reveal that 350 of the total 800 products in the line produced 70% of the total sales revenue. The result of such an analysis would reveal that much less detail would provide a significant picture of the sales effort.

If the organization has its sales information under a data base management system, it will be easy to restructure the reports in order to reduce both the print time and paper volume required to produce meaningful reports. All data will still be used as input, but through a more effective selection process, those items that do not affect the business can be combined and printed as totals rather than as line items. The detail will still be available and can be produced when required.

The savings in the cost of paper, machine time, printer use and handling are obvious. If the process is put on-line and CRTs are used, further reductions in these costs can be realized. Perhaps the biggest benefit will be the lowered frustration level of those who must use the information. The sales function can now be managed more effectively and more immediately. Problem areas can be identified and corrected more quickly. The focus can be sharpened to identify and address the critical areas and to target new opportunities.

This may seem a rather elementary and obvious example of the value of exception reporting and perhaps it is, yes, such situations exist in many organizations. We tend to become sensitized to the work our departments produce. It never hurts to take the time to step back and look at what is being sent to our clients. An objective analysis of improvements in new technology may make exception reporting a more viable process.

Murray is director of management information services for Raytheon Corp., Madison, Wis., and author of *Management Information Systems as a Corporate Resource*, published by Dow Jones-Irwin.

And visions of robots danced in my head



HUMAN CONNECTION
Jack Stone

There is no question that within a few years, enterprising systems folks will support cost-effective applications of robotic machines of all makes and styles from the production facilities of America to the offices.

This conclusion was driven home in the futuristic movie *Blade Runner*, in which these machines had not only become well established in such challenging environments as building construction, but even more impressive, they were serving as maids and housekeepers.

The plot of the film concerns an evil crook who replaces processor chips of user-friendly robots with chips programmed to turn the little

fellows into user-hostile killers. Tom Sellick, a police officer who specializes in robotic deviants, tracks down the mad machines and dispatches the crook with alacrity.

Robot runs amok

It is not difficult to extrapolate from Sellick's saga and accept the inevitability of robots, designed to alleviate the shortage of skilled workers in computer centers. But one wonders how Sellick would handle a programming robot that has run amok.

■ **The time:** Christmas Eve, the year 2010.

■ **The place:** The offices of a major computer operation.

■ **The scene:** Several dozen robot programmers are busily working at their desks, typing madly away at mainframe terminals, entering code at six to 10 times the rate of their human counterparts.

Doris Sletstern, a bright, young analyst who heads a small programming department is conducting an important meeting with her staff. In attendance is a robot with the name "R9D9" stenciled on its chest.

"Are we all agreed, then? The problem is of such critical proportions that we must call Officer Sellick!"

"Yes!" responds the staff. The robot's antennae is seen to droop at the decision.

A few minutes later, Sellick races in with full regalia: steel headgear, leaded clothing and a zipper ray gun. "Where is the creepy, crawling monster? Let me at it!"

Sletstern puts her hand up to slow down the attack and says soothingly, "Whose now, hold your horses and quiet down. Although our situation is desperate, you must appreciate that we certainly don't want you upsetting the other robots."

"We have delegated virtually all of our detail work to our robot teams. The machines take care of the computational support of system design, layout and documentation of the program specifications, parameter selection, detail coding and programming documentation."

"As a consequence, we find ourselves relieved of all the tedious, drudgery and routine aspects of the programming job, and we can focus all of our energies on the creative aspects of our assignments. However, the bottom line is that there is so little creative work to do that it's difficult to get psyched up to do it. So we programmed R9D9 here to play 'Ad-

venture' with us, setting it up so that we find all the treasure and come up with a perfect score. The victory really gets our creative juices flowing."

Beyond the glass, green smog

"But someone changed his processor chip, and we can't move beyond the glass, green smog. We've tried crashing — lighting the lamp, drinking the water, we even let the bird out of the cage."

"Unless we find a way to kill it, we won't win the game and we'll wind up without the incentive to design new systems."

"Please, Tom, will you find the sinister source of this horrific act?"

Sellick points his zipper at the visual sensor of the robot and demands, "All right, you bucket of bolts, who is the culprit? Tell me or I'll blow you right into electronic heaven."

R9D9 brings, "I'll come clean. I did it — but with good reason. They were giving 'Adventure' a bad name with all their wimpy, boring a player myself, I couldn't stand the corruption."

Have a wonderful holiday and great New Year.

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ple manner. Then, once set, all can be stored in non-volatile memory. And the DECwriter III teleprinter can provide crisp, legible forms up to an impressive 6 parts.

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For further versatility, the Letterwriter 100 teleprinter lets you select from 8 different character widths, multiple character sets and a wide variety of typefaces. In fact, you can store 5 different typefaces resident within the teleprinter, and the selection can include Courier 10, 12, and Italics, Gothic 10 and 12, Orator 10, and APL, so you can select the style that suits the job as easily as pressing a key. And, in the event you'd like to illustrate a particular point, bit map graphics help you do just that.

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SOFTWARE & SERVICES

JAD project aids design

User involvement stressed in structured method

By Gary Rush
Special to CWS

Most DP professionals agree that increased user involvement ensures better systems design and reduced maintenance. Now there is a new way to achieve this through a structured meeting technique called Joint Application Design (JAD).

This technique, developed by IBM, uses an impartial, trained session leader and an agenda structured to extract a high-quality statement of business system needs in a fraction of the time normally required when using traditional methods.

This method replaces traditional techniques in which analysts interview users and then translate their needs into DP terminology. The traditional methods often fail because of the communications gap between data processing and the business community or user.

The JAD method provides a technique for documenting business requirements

from the user's perspective and in the user's language. It does this with clearly defined steps, an impartial session leader to guide the participants, workbooks to assist both the session leader and the participants and the dynamics of a workshop environment.

In companies using JAD, the relationship between DP and users has improved, requirements and design specifications are being gathered more quickly, maintenance is being reduced because the system was designed right the first time, and backlogs have significantly diminished.

JAD can provide better requirements faster. Furthermore, involving users in the process of designing their business systems makes users feel that the system developed really is their system.

JAD works because it enables the business community to specify its system needs without having to resort to technical jargon. In addition, an impartial session leader ensures that all sides are represented, the workshop environment fosters a concentrated effort, and preworkshop preparation ensures high-quality needs.

The JAD process begins by identifying a user executive who sponsors the business system. The executive sponsor provides

See JAD page 28

Rush is a member of Euron Corp.'s Development Center in Florham Park, N.J. He has functioned as a Joint Application Design (JAD) session leader and is a co-manager of the JAD project within Guide, an IBM users group.

■ Help/38 Systems, Inc. announces a productivity aid for RPG-III/34

All software should be free, software developer maintains

By Maury McInerney
CT Staff

TYNOSBORO, Mass. — Richard Stallman faced the crowd and boldly voiced his opinion. "I don't believe that people have the right to hoard software. Those who do are enemies of society."

Stallman, 31, is the originator of the Emacs editor and a former affiliate of the Artificial Intelligence Laboratory at MIT. Recently, he has become an outspoken advocate of free software.

As one of four panel members at a re-

cent Wang Institute of Graduate Studies discussion of software protection and later during a phone interview with Computerworld, Stallman outlined his latest project — a Unix-compatible software system that will be given away to the public.

Stallman has been independently working on GNU, which stands for Gnu's Not Unix, a project that reportedly will include a kernel and utilities needed to write and run C programs. The product is

See FREE page 38

Sigma passing mourned

Sigma is dead.

The charter of the provisional Special Interest Group on Software Maintenance (Sigma) of the Data Processing Management Association (DPMA) was revoked last month for failure to recruit enough new DPMA members. The group plans to reorganize but as an independent entity.

Sigma's failure is unfortunate. With all the attention that software maintenance has received over the last couple of years, it would seem that the time was right for more formal recognition of the complex factors involved. It is generally agreed that maintenance costs in the average DP shop are approaching 50% of the programming budget. In some cases,

See SIGMA page 34

SOFTALK/PAUL GILLIN

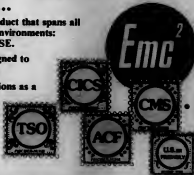
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SOFTWARE & SERVICES

RPG Lite converts RPG-III into free-format language

MINNETONKA, Minn. — Help/38 Systems, Inc. has announced a productivity aid that makes IBM's System/38 language — RPG-III — a free-format language.

According to a spokesman, RPG Lite allows programmers to type in source statements without prompting or formatting, just as they would for Cobol, Fortran or Basic. The package allows programmers to indent their coding into logical blocks and it then converts the code into compilable, formatted RPG III.

RPG Lite is said to reduce the IBM source entry utility (SEU) load on the

System/38, allowing many programmers to code simultaneously without slowing response time because programmers can enter up to 100 lines of RPG-III without hitting Enter. Multiple statements reportedly can be coded on one SEU line. New programs can be coded with RPG Lite and new routines can be added to old programs.

RPG Lite is priced at \$795, the vendor said.

More information is available from Help/38 Systems, which is located at 15102 Minnetonka Industrial Road, Minnetonka, Minn. 55346.

SIGMA from page 31

that figure is closer to 80%. Sigma's commendable purpose was to draw attention to this issue. But its execution was faulty, at least as far as the DPMA was concerned. In revoking Sigma's charter, the organization said that Sigma had failed to recruit 100 DPMA members — a de facto requirement for certification. The DPMA also noted that Sigma had failed to petition for transition to regular status — a requirement for provisional DPMA special interest groups.

Christian Meyer, international vice-president for association growth and support at the DPMA, said, "Other than generating a newsletter, no further formative work went into the special interest group." He added that the basic structure was simply

not in place to expand membership. The group's officers maintain that they tried to recruit new members but could not satisfy the DPMA's requirements. "DPMA felt Sigma had not done enough in recruitment," said Ned Chapin, a DP consultant at Infoced, Inc. in Menlo Park, Calif., and former president of Sigma.

Sigma did succeed in signing up about 55 DPMA members and 115 non-DPMA members during its charter year. However, DPMA rules require all members to become part of the DPMA once the special interest group moves to regular status. For members, that would have meant paying the \$60 DPMA fee plus an additional \$15 for Sigma membership.

The group also apparently had never been clear on the requirements for certification as a DPMA special interest group. "We were trying to get members whatever way we could, on a limited budget," said Nicholas Zvingstov, editor of Sigma's newsletter, "Software Maintenance News." However, he added that Sigma never really knew how many DPMA members it had.

What Sigma lacked in organizational details it made up for in zeal. In 1984, Sigma members spoke at the National Computer Conference, the Information Management Exposition & Conference and professional development seminars for the DPMA and the Association for Computing Machinery. It was also heavily involved with the Second Annual EDP Software Maintenance Conference held in Washington last May.

No lack of interest

Those who were involved with Sigma agree that the organization's failure was not due to lack of interest. "The subject is still not very popular," said Gish Parikh, a Chicago-based consultant and author of two books on software maintenance. "Most people concentrate on development. People don't usually want to think about their problems."

However, no one sees the maintenance issue going away soon. Parikh said he believes attention will be refocused only through the efforts of groups like Sigma to bring maintenance to the floor.

In the meantime, the group's officers have vowed to try to create a new software maintenance group that is independent of the DPMA. "Software Maintenance News" will continue to be published. Chapin is interested in hearing from anyone who may want to participate in the new group. He can be reached at Infoced, Box 7117, Menlo Park, Calif. 94026.

In addition, the DPMA is welcoming comments from people who would like to rejuvenate software maintenance activities within the DPMA. Meyer is located at BST Consultants, P.O. Box 23425, Tampa, Fla. 33623.



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... and a computer with 54K memory, a floppy disk drive, a CRT with a light pen and full software packs.

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The key word in that long, drawn-out headline is system.

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The HP Touchscreen MAX has even more capacity, with the added power of a 14.8M byte Winchester disc drive.

And both have DSN/Link, to let you set up a direct line of communication between them and your HP 3000 Department Computer.

As the names imply, you can actually change things on either screen just by touching the screen.

That makes the Touchscreen PCs easier to use. And a lot easier to learn.

The system also includes two print-

ers many people think are simply the best around.

Our Hewlett-Packard LaserJet and ThinkJet printers are both breathtakingly fast and refreshingly quiet.

The ThinkJet printer runs at a rapid 150 characters per second.

Yet because the ThinkJet paints each character with a small jet of ink (instead of smashing the paper with keys), it's as quiet as a sigh.

At 300 characters per second, our LaserJet printer is even faster.

Ten times faster than the best daisy-wheel printers. Yet the image is as sharp as you'll get from a printing press. Amazing.



and when you get to your hotel, change everything.

Two different plotters are also part of the HP personal computer system.

Both create full-color graphics. One with two pens, the other with six for even more detail.

If you like, the system can be knitted together through a LAN.

It lets a number of HP personal computers link up, talk to each other, share printers, and exchange information.

By the way, there can be a lot of information to exchange. That's because there are more than 500 business software titles available. For word processing, accounting, spread sheets and graphics. You'll find the big names there, too.

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And with its built-in modem, it can link you with your office printers and plotters. Not bad for a computer that weighs just nine pounds and can fit into a briefcase.

The system is all linked up, all on the same programs, all designed to work together, and all ready to go.

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**HEWLETT
PACKARD**

SOFTWARE & SERVICES

FREE from page 31

is said to include an Emacs-like editor, a shell, C compiler, linker and assembler. Stallman said he hopes to have the project completed by the spring of 1985.

According to Stallman, "GNU will be able to run Unix programs but will not be identical to Unix." Longer file names, file version numbers, terminal-independent display support and a Lisp-based window system are planned for the product, Stallman said.

Through GNU, Stallman said he hopes to create a complete software system free for anyone to redistribute. "I consider that the golden rule requires that if I like a program I must share it with other people who like it. I cannot, in good conscience, sign a nondisclosure agreement or a

software license agreement," he said. Once GNU is launched, Stallman believes they will have a system that no longer requires users to pay for their software. "The purpose of this is to make it possible [for me] to use computers without being ashamed of what I'm doing every minute."

Copies improve software

All software should be free, Stallman said, because it is improved upon only when it is built upon, just as "any [form] of art progresses most quickly when people build on each other's work. Every time you make copies of a program, you make things better for society."

Licensing software only prevents people from being better neighbors, he noted.

"I consider it an utterly intolerable offense when people say I can

use a program only if I agree not to share it with other people," he said. With GNU, Stallman said, "I wish to promote the sharing of software and interfere as much as I can with other people's attempts to interfere with the sharing of software."

Copyright laws provide a major interference with software sharing, Stallman said. These laws actually discourage users from being "good neighbors" and can result in fewer people using software programs and a deteriorating quality of the program, he said.

Software protection laws are similar to arson, Stallman said, since "you threaten to destroy wealth if people don't pay you for it."

Although Stallman supplements his income by consulting for Lisp Machine, Inc., he maintains that "what I write has to be shared."

JAD from page 31

the management perspective and sets the purpose and scope of the effort. This management commitment is important to the success of the system design.

The preparation further involves completing a management definition guide and a familiarization guide and preparing the workshop agenda. The purposes of the management definition guide are to obtain user management commitment on timing and support; assign personnel for the sessions; define what management considers to be the purpose, scope and objectives of the project; and to identify the constraints of the project.

The familiarization guide is used by the session leader who interviews line management about the current business environment and encourages users to think about the upcoming design. The information collected is used to prepare the workshop agenda. For very large projects, the preparation also consists of a functional decomposition of the business by both the DP and user participants to ensure that only manageable pieces are tackled at one time.

System needs developed

In the JAD workshop session, all of the business requirements and systems needs are developed. These sessions generally run eight hours a day and usually no more than three to four days at one time. The sessions involve the session leader, one or two people to document the results, one or two DP personnel — usually the project leader and one technician — and up to eight users.

The users range from the lead clerks or technicians up through the second- or third-line management. The data processing personnel are involved to provide assistance to the users and background information on existing systems and technology. They also ensure that they understand the users' needs and can translate the resulting documents into a meaningful system design.

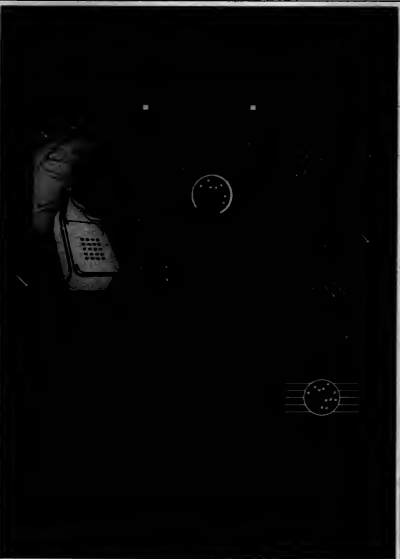
The basic session follows a very simple, flexible, yet thorough agenda. This agenda consists of 10 steps; two involve preparation and eight involve design.

The first two steps cover the ground rules and structure of the session and the current business environment. The remaining eight steps follow the life of a business function through a given area (see story page 31).

Materials, books, checklists, visual aids and other tools to support the technique and the session leader have been developed by IBM. The technique, developed in 1977 by IBM's Chuck Morris, was originally used to assist in installing distributed systems.

In 1980, IBM Canada adapted JAD so that it could be used for any requirements and design-gathering activity. Since then, it has been used by various companies to design everything from grain elevators to robotics to standard DP applications.

JAD consulting and training are now offered by IBM's Information Systems Services organization. In addition to IBM, the technique is used by such companies as Texas Instruments, Inc., American Airlines, Inc., CNA Insurance, Bell Canada, New York Life Insurance Co. and Carrier Corp.



COMMUNICATIONS

Report warns of Inter-Lata mart shakeout

By James Connolly

CHICAGO — The flock of 400 Inter-Lata Access Transport Area (Inter-Lata) carriers will thin to 100 in a few years, and that group will be dominated by two dozen carriers who are now building their own networks, according to an industry report by Telephony Publishing Corp. here.

Taking its name from a famous economist, the study, titled "The Independents: The Gospel According to Adam Smith," found that the image of independent communications firms as "lolling about in the new competitive market" is a myth.

"Some years ago, the independents [such as MCI Communications Corp. and GTE Sprint Communications Corp.] saw that deregulation was becoming a fact and competition would be a permanent part of their business," the report noted. Seeing the writing on the wall, the independents pursued a two-pronged strategy. "They concentrated on digitizing their networks and also expanded into the more lucrative opportunities that would become available. The resulting mergers, acquisitions and joint ventures were suffused with the spirit of Adam Smith. The independents have now entered the performance phase of their strategy," the report said.

The independents are now focusing on Inter-Lata and multitenant services and the local-area network market, and the market for data communications hardware, software and services "holds promise of handsome profits." The report observed that the independents have been active in the mentioned markets through mergers, financing and construction. It predicted that the market for multitenant services would blossom into a \$1 billion annual business within five years.

In the Inter-Lata market, the report predicted that companies like GTE Sprint and United Telecommunications, Inc. would succeed in the \$40 billion Inter-Lata market because they are already building backbone networks to serve most of the major metropolitan areas. The study also noted that paging, CATV and videotex have "whet the independents' appetites." But the researchers found that more households will be using videotex than two-way cable by 1990.

In the video/data communications customer premises equipment market, the study found that manufacturers and interconnects will share 50% of an approximately \$8 billion market. Of the balance, AT&T Information Systems will account for 20% and the independents and diversified Bell operating companies will share the remainder.

The report concluded that "a definite lack of fanfare has greeted the independents' march into the new markets. Few competitors have been alerted. That ignorance could prove expensive bills."

"The independents have targeted the corporate market with an array of subsidiaries offering multitenant services, high-speed networks, specialized data base and equipment for the integrated video/data communications market. They're right on target."

The report is available for \$100 from Telephony Publishing, 65 E. Jackson Blvd., Chicago, Ill. 60604.

Infotron unveils multiplexer

Infostream provides multinode networking

CHERRY HILL, N.J. — Infotron Systems Corp. has announced a voice/data multiplexer designed to integrate with the company's IS4000 Intelligent Switching System to provide multiple-node networking at 1.544 Mbit/sec speeds and higher.

Infostream is said to be a fully featured, software-driven, time-division multiplexer that can be used by itself in single- and dual-link, point-to-point, drop-and-insert or ring configurations. When used with the IS4000, it provides a multinode network operating at 1.544 Mbit/sec or 2.048 Mbit/sec with 50 or more multiplexers interfacing to each node, according to the company.

The multiplexer reportedly also works with Infotron's ANM800 Advanced Network Manager, a centralized monitoring and control system that reports continuous, real-time network status.

The vendor said Infostream will be an element in Infotron's Advanced Network Integration approach to networking, which will integrate all Infotron products with networkwide management and control.

Infostream is said to be software-controlled through a control console from a single, user-determined location. Diagnostics reportedly include remote channel level data monitoring. Infostream also stores multiple configurations for use in applications where separate day and night configurations are needed and features autoreconfiguration to revert data or voice automatically by using a

multilevel priority scheme, Infostream said.

The company reported that configuration changes or channel additions are down-line loaded without interrupting data on unaffected channels and that dynamic circuit allocation

allows the user to reallocate bandwidth based on user-selectable priorities.

It supports AT&T-standard Pulse Code Modulation for 24 voice channels per T1 carrier or AT&T's proposed standard of Adaptive Differential Pulse Code Modulation, permitting up to 44 voice channels per T1 carrier.

For data transmission, Infostream is said to provide channels for asynchronous or syn-

chronous data at rates from 60 to 19.2K bit/sec. For high-speed data, it reportedly offers channels for synchronous data at rates from 56K bit/sec to 768K bit/sec. It reportedly provides for bandwidth contention, permitting more devices to session-contend for a smaller number of time slots, such as four 9.6K bit/sec terminals contending for three 9.6K bit/sec time slots.

An optional statistical multiplexer interface card is available.

The company also said Infostream is configured for redundant control logic, link interface and power supplies.

Infostream costs \$45,000 when configured for 64 channels and \$78,000 for 128 channels.

More information is available from Infotron, which is headquartered at Cherry Hill Industrial Center, Cherry Hill, N.J. 08003.

Infostream will be an element in Infotron's Advanced Network Integration approach to networking, which will integrate all Infotron products with networkwide management and control.

■ Equatorial Communications Co. and the New York Stock Exchange have announced an agreement under which the stock exchange will transmit price quotations/40

INSIDE

Voice/Data Communications/46

Amnet switches bow

WATERTOWN, Mass. — Amnet, Inc., a manufacturer of packet switches used in private networks, recently announced a new line of competitive, expandable X.25-based switches built with microprocessor components that are homogeneous across the product line.

The Nucleus 6000 product family includes three models: the N6000/XAS X.25 Access Switch, which can support up to 300 packet/sec throughput; the N6000/XTS X.25 Transport Switch, which can transfer 800 packets/sec; and the top-of-the-line N6000/SFX Extended Performance Switch, which can shuttle up to 1,000 packets/sec.

All three models reportedly use the same hardware and software. Packet-processing modules can be added to increase packet throughput, and front-end processing cards can be added to increase the number of lines.

Packet routing, data-link protocol support and packet I/O queue management are said to be handled by dedicated microprocessors. "A typical node may include 20 microprocessors. Each microprocessor executes its own program from local random-access memory, but they all manipulate common tables and data packets," the company reported.

The Nucleus 6000 system is segmented into control and port sections. The control section has up to 10 packet processors, common memory for packet routing

See SWITCH page 40

Easy Software tool links HP 3000, electronic mail

Easy Software Co. has introduced EasyNet/3000, a collection of hardware and software that allows the Hewlett-Packard Co. HP 3000 computer running under HP's MPE operating system to connect to Western Union, Inc.'s Easylink electronic mail system, as well as to Telex and TWX facilities.

The system allows simultaneous transmission of messages from any terminal connected to an HP 3000 instead of through a Telex operator and eliminates the need for Telex and/or TWX equipment, the vendor said.

The software — HP Store — resides on the HP 3000 and is responsible for the overall management and configuration requirements of communications channel usage.

The hardware is connected between a hard-wired asynchronous RS-232 port on the HP 3000 and each communications line handled by EasyNet/3000. One asynchronous port, one Easy Software EasyNet/3000 Terminal Interface Controller channel and one modem are required for each communications line.

The package costs \$7,375, which includes software and hardware maintenance for one year.

Easy Software is located at 346 E. South Temple, Salt Lake City, Utah 84111.

COMMUNICATIONS

Network to carry stock prices

MOUNTAIN VIEW, Calif. — Equatorial Communications Co. and the New York Stock Exchange have announced an agreement under which the stock exchange will transmit price quotations via Equatorial's satellite-based network.

Under the five-year agreement, Equatorial will operate the point-to-multipoint net-

work, which will provide the stock exchange's 4,000 subscribers with real-time price quotations through Equatorial's receive-only, 2-ft-wide earth stations.

The agreement follows a pilot program under which 25 earth stations were installed during the first quarter of 1984.

A stock exchange spokes-

man noted that many of the exchange's subscribers are in outlying areas where land-line service is expensive or difficult to obtain.

The New York Stock Exchange is located at 11 Wall St., New York, N.Y. 10006; and Equatorial Communications is at 300 Ferguson Drive, Mountain View, Calif. 94043.

VOICE/DATA COMMUNICATIONS

HEWLETT-PACKARD CO. HP Remote Job Entry/1000-II

Hewlett-Packard Co. has announced an IBM 2780/3780 communications capability for the HP 1000 family of scientific and industrial computers.

The HP Remote Job Entry/1000-II (RJE/1000-II) report-

edly allows HP 1000 computers to emulate the 2780/3780 workstation protocol for remote batch data communications. The HP 1000 had been limited to 3780 emulation on the HP 1000 R/E series.

The package is said to allow HP 1000 users to transfer files, access data bases and submit jobs for remote processing on IBM computers or computers emulating the 2780/3780 protocol.

The product supports a line speed of 19.2K bit/sec and achieves more than 90% line efficiency and less than 2% CPU utilization, according to the vendor.

The HP RJE/1000-II uses an intelligent microprocessor-based interface card to handle the bi-directional communications link to the IBM host. The interface card provides fast and flexible communications with a range of computers by off-loading much of the I/O handling and task scheduling.

It reportedly operates with dial-up lines and leased lines and is suitable for applications such as communicating product manufacturing specifications from computer-aided design machines to HP 1000 computers on the factory floor.

The cost for HP RJE/1000-II ranges from \$2,400 to \$5,000. The programmable serial interface card needed to operate HP RJE/1000-II costs \$2,325.

Hewlett-Packard, 3000 Hanover St., Palo Alto, Calif. 94304.

See how INFO will make your company more efficient and your life a lot easier.



SOFTWARE

SWITCH from page 39

and other tables, an intelligent buffer, direct memory access (DMA) and buffer management.

The switch's port section has a proprietary bus that supports DMA transfers of data packets to and from front-end processors used to terminate lines. These front-end processors come in a low-speed version, supporting four RS-232 or V-34 ports at an aggregate rate of up to 19.2K bit/sec and in a high-speed 64K bit/sec version for subscriber lines or network trunks. As an option, dual-control sections, power supplies and redundant data base storage are available to heighten switch uptime.

The included network management system, controlled by separate data base processors, features distributed data bases for load sharing of call processing and other net management features. Also touted as original is the Nucleus 6000's dial-out X.25 capability, which complements the dial-in facility.

The Nucleus 6000 is available 90 days after receipt of order and ranges in price from \$30,000 to \$300,000.

Amnet is located at P.O. Box 412, 101 Morse St., Woburn, Mass. 02172.

SYSTEMS & PERIPHERALS

IBM 3380 damage: Tip of a larger problem?



HARD TALK
Tom Henkel
Of New York

When IBM notified its 3380 disk drive users that a chemical used to kill bacteria in air-conditioning systems could damage the drives (CW, Dec. 17), it may have opened up a whole new area of concern for users and manufacturers of electronic equipment.

It is clear that in spite of the dramatic electronic breakthroughs that have made hardware faster, smaller and more reliable, much has to be learned about how these new technologies react in everyday environments.

IBM recently determined that a build-up of tin oxide in the head disk assembly was causing intermittent head disk assembly problems at several sites. The tin oxide is part of the chemical biocide used to kill bacteria in the water used in air-conditioning systems.

The chemical apparently lingers in a gaseous form in the computer room air the 3380 uses for head disk assembly cooling.

Although you have to give IBM credit for identifying an obscure technical problem, some users feel the explanation is somewhat farfetched. Several 3380 users contacted recently admitted that they have experienced higher than normal head disk assembly failures in 3380s, but seemed reluctant to admit

that the problem was a direct cause of tin oxide contamination. Even makers of 3380-compatible disk drives, which use the same basic technology as the 3380, seemed to view IBM's biocide warning with some skepticism.

Storage Technology Corp. (STC) and Memorex Corp. were reluctant to state flatly that tin oxide in computer room biocides was a serious enough problem to warrant immediate action. After originally stating that a biocide containing tin oxide was safe if used in the chemical manufacturers' recommended quantities, STC decided to side with IBM, recommending discontinuing use of the biocide. Memorex is still studying the whole affair.

In fact, organometallic biocides may be only one type of chemical that can adversely affect 3380s. David Lema, director of the Teale Data Center of Sacramento, Calif., a service bureau run by the state, said his shop was having higher than normal head disk assembly failures about 10 months ago (roughly one a month over a six-month period). Because the Teale center does not use an organometallic biocide, Lema said IBM sent in a special team of investigators, which removed eight of 80 head disk assemblies and took various samples from the computer room to find out what was causing the problem.

So far, IBM has been unable to find any specific contamination problem at Teale. Lema believes the Teale center, which is located in a mainly agricultural area, may have been affected by pesti-

cides used by surrounding farms. Following that possibility, the center reduced its outside air intake from 100% hourly to 16% hourly — the lowest legal fresh air intake in California. As a result, the problem has subsided. "We still have failures," Lema said, but the rate is no longer abnormally high.

The question that remains in the wake of the 3380 head disk assembly failures is whether the whole affair is just a bizarre incident or the tip of a much larger problem.

The thin-film head technology used in the 3380 has been a chronic sore spot for IBM as well as for other vendors that have tried to emulate IBM's product. Every manufacturer that has tried to develop a thin-film head disk drive has encountered at least one major technological setback that has delayed bringing the product to market. Clearly, the thin-film head technology challenges today's manufacturing techniques, but at this point, it seems fair to question whether the technology is just too fragile and too difficult to manufacture to be the mainstay of any major vendor's storage product line.

IBM is already in the throes of developing a larger version of the 3380, which analysts say will offer roughly 1.6 times the performance of the original 3380. Word is that the unit will also use thin-film read/write heads. It will be interesting to see whether IBM sticks with the thin-film technology when it develops an even bigger drive to replace the 3380.

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INSIDE

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CAD graphics system introduced

NORTH BILLERICA, Mass. — Raster Technologies, Inc. has announced a three-dimensional graphics system, the Model One/380, for applications in mechanical computer-aided design, geophysical processing, simulation and architectural design.

The Model One/380 features the company's 32-bit floating-point coprocessor and command set, up to 4M bytes of local display memory, a 1,280-by-1,024-pixel resolution, up to 24 bits of image memory for true color and a 16-bit depth buffer, the vendor said. The product also includes a Zilog, Inc. Z8000 microprocessor.

The product's functions include coordi-

nate transformations, light model calculations, smooth shading and hidden surface removal. Porting these functions to the local graphics system results in higher performance on the host, the company said.

The Model One/380 comes standard with a direct memory access port conforming to Digital Equipment Corp.'s DR11W and DR11B specifications, the company said.

The price for a Model One/380 with 19-in. monitor, keyboard, data tablet and mouse is \$41,500, the vendor said. The product will be available in February.

More news can be obtained from Raster Technologies, 9 Executive Park Drive, North BillERICA, Mass. 01962.

DEC-based graphics system out

DATTON, Ohio — CAD CAM, Inc. has announced the CAD CAM Complete System graphics design station, based on the Digital Equipment Corp. LSI-11/23 or LSI-11/73. It also features a NEC Corp. 7220 graphics display microprocessor and an Intel Corp. 8005 microprocessor display system controller.

The dual-screen workstation comes with either 512K bytes or 1M byte of random-access memory (RAM) and up to 60M bytes of disk storage.

Monitor resolution is 1,024 by 1,280 pixels, and color is an option.

The price for CAD CAM Complete System

based on the LSI-11/23 with 256K bytes of RAM and a 2M-byte floppy disk is \$37,500, the vendor said.

The price for a system based on the LSI-11/73 with 1M byte of RAM, a 25M-byte fixed disk, 25M-byte removable disk and a 1M-byte floppy disk is \$47,500, the vendor said.

The price for the color option is \$7,500, the company said.

More information on the CAD CAM Complete System can be obtained from CAD CAM, which is located at 3644 E. River Road, Dayton, Ohio 45439.

STC adds disk controller, drives, 3380 disk emulation for 4305 storage subsystem

LOUISVILLE, Colo. — Storage Technology Corp. (STC) has announced IBM DOS/VSE support for its 4305 Optimizer Storage Subsystem, the 8890 Sybercache Intelligent Disk Controller and 8380 disk drives. The 4305, 8890 and 8380 are hardware- and software-compatible with IBM's 30, 4300 and 3080 series and equivalent processors.

The STC units can reportedly run without software modifications under all releases of IBM's VM/370, MVS (including SE, SP and CA) and DOS/VSE Releases 5.5.

The 4305 I/O device, which now emulates an IBM 3380 disk device, will reportedly deliver to DOS system users the performance requirements necessary to optimize applications sensitive to response time.

The STC 8890 Sybercache Intelligent Disk Controller helps solve performance-related I/O problems in an interactive or batch system environment by improving the response time for applications, the vendor said.

The two 8380 disk drive models are capable of storing 2.5 billion characters of data with a transfer rate of three million char./sec. They reportedly offer the DOS/VSE system user a storage capacity of 2.5G bytes and a reduced access time averaging 16 msec.

A typical configuration — a 4305 Model 3 with one storage director and two storage modules with 24M bytes of memory — costs \$60,000. The same 4305 with four storage modules (48M bytes of memory) is priced at \$120,000. The 8890 with 3M bytes of memory costs \$115,250, and with 6M bytes, it costs \$190,960.

The 8380 Model A44 is priced at \$67,325, and one two- or three 34 units can be attached to the A44 for \$63,150 each, according to the vendor.

More information is available from STC, 2270 S. 89th St., Louisville, Colo. 80026.

SYSTEMS & PERIPHERALS

Netlink offers 3703 enhancement

RALEIGH, N.C. — Netlink, Inc. has announced a microcode enhancement for its 3703 Network Processor that features support for IBM's Remote Job Entry (RJE) Station Facility, which is said to emulate IBM's 3777 Model 3 and Model 4 multiple logical units. The added emulation is said to permit Asci, Binary Synchronous Communications or Personal Computer devices to attach to IBM's Job Entry Subsystem 2 or Subsystem 3, with full RJE console function.

The 3703 is a physical unit-type cluster controller node said to map multiple protocols concurrently to

user-defined multiple logical units. It is meant for use with host CPUs using IBM's Systems Network Architecture.

Functions include multiple logical units per port, permitting concurrent operation of screen and printer, the vendor said.

The price for the enhanced microcode provided with new orders of the 3703 Network Processor ranges from \$8,500 to \$12,500. Upgrading to the enhanced microcode costs \$600.

Netlink is located in Suite 110, 2920 Highways Blvd., Raleigh, N.C. 27626.

DISKS (from page 4)

Recall that IBM was one of the first companies to scrap most of its Josephson Junction research projects, claiming the cryogenic technology was too expensive to build and, perhaps more importantly, too difficult to maintain in the field to be a viable technology for CPU designs.

IBM is not saying exactly what is going wrong with its \$380 head disk assemblies as a result of tin oxide contamination. Some say the problem is a simple one, the chemical in building up on the disk platters and on read/write heads in sufficient quantities to cause a head crash. Others, however, tell a more complex story. One technician said the tin oxide is breaking down the effective-

ness of the tiny three-stage filter that blocks particulate matter from entering the 380's head disk assembly, causing more foreign elements to enter the head disk assembly. Another theory is that tin oxide is also breaking down the plastic used in the 380's cabinet, which in turn releases another gas that can damage the 380's storage media.

Whatever the cause, IBM clearly has a problem it would like to solve. The company is replacing failed head disk assemblies without charge and is taking special care to contact 380 users about the potential problems. IBM is obviously viewing the 380 situation as a very serious problem — one that may cast a shadow on the future of thin-film heads as a technology in IBM disk products.

Reach the Danish computer market with Computerworld/Denmark.

The Danish EDP market is growing at an incredible rate of 27% annually. Last year, this market was valued at more than \$185 million. And the U.S. is Denmark's major supplier of EDP products accounting for 40% of the country's computer equipment imports.

When Danish computer professionals with purchasing power want the most up-to-date local and international information on the EDP industry, they read Computerworld/Denmark, since publication to Computerworld/Computerworld/Denmark is a bi-weekly newspaper serving the Danish computer community with the latest developments in hardware, software, terminals and other computer products and services. And, in every issue, the MicroWorld section reports on the special needs of the micro and user and the status of the market.

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GRAPHICS SYSTEMS

SKOK SYSTEMS, INC.

Artech 217 Workstation

Skok Systems, Inc. has announced the Artech 217 Workstation desktop computer-aided design and drafting system, based on the Hewlett-Packard Co. 32-bit Model 9000 desktop processor.

The Artech 217 is compatible with Skok Systems' Artech 220 and 220GP design stations that run Skok's application software, and all three can be networked, according to the company.

The product features a 14-in. monochrome display screen, keyboard and graphics tablet. A Motorola, Inc. 68010 microprocessor uses 2M bytes of random-access memory in a standard configuration.

The price for an Artech 217 entry-level system, including the Artech 217 Workstation, dual-disk drive and Arplan two-dimensional design and drafting software, is \$29,900.

Skok Systems, 222 Third St., Cambridge, Mass. 02142.

CAE SYSTEMS, INC.

CAE 2000/560 color workstation

CAE Systems, Inc. has announced the CAE 2000/560 color workstation, based on Apollo Computer, Inc.'s Domain DN560 color workstation. The unit supports existing CAE 2000 electronic design automation tools and interfaces.

The CAE 2000/560 can operate in a stand-alone configuration or as a node in the company's multiengineer Worksystem design environment.

The workstation's software can be used to color multiple wave forms individually, to identify nodes on the circuit diagram and to highlight circuit blocks and key data.

The Apollo DN560 workstation is based on the Motorola, Inc. 68010 microprocessor and a dedicated bit-sliced graphics processor. The CAE Systems configuration is available with up to 3M bytes of main memory and can support up to 24 concurrent processes, each with 16M bytes of virtual address space, the company said.

The resolution of the workstation's 19-in. CRT is 1,024 by 800 pixels, and the unit can display eight colors simultaneously, according to the company.

The price for the CAE 2000/560 with 1.6M-byte memory, 50M-byte hard disk storage and software is \$62,800.

CAE Systems, 1333 Boardwalk Drive, Sunnyvale, Calif. 94086.



POWER SUPPLIES

NOVA ELECTRIC

MANUFACTURING CO.

Galaxy 1000

Nova Electric Manufacturing Co. has announced the Galaxy 1000 on-line 1 kVA uninterruptible power supply, said to include a battery charger, battery, inverter and 4-cyclic static transfer switch.

The Galaxy 1000 features total harmonic distortion of less than 3%, with the output waveform closely approximating the power produced by electric utilities, according to the vendor.

It is intended for static loads of up to 1,000 VA, but a short-term overload of up to ten times its rating is provided, the company said. Voltage regulation is $\pm 1\%$, and frequency regulation is $\pm 0.5\%$. Battery backup time reportedly is nine minutes.

The Galaxy 1000 costs \$3,500. Nova Electric, 263 Hillside Ave., Nutley, N.J. 07110.

BOARD-LEVEL DEVICES

DATA-SUB SYSTEMS/U.S., INC.

Versabus/Vmebus Adapter

Data-Sub Systems/U.S., Inc. has announced the Versabus/Vmebus Adapter Versabus board, said to enable users to install and operate most Vmebus boards in a Versabus card cage.

The card's interior is cut out to the size of a double Virtual Machine Environment (VME) board and is fitted with a standard P1 connector. Another cutaway is provided in which the user reportedly may place a VME P2 or other connector for special purposes, such as an I/O channel. The adapter board takes one slot in the Versabus rack.

Direction of data and address buffers are jumper-selectable for master or slave modes, and address modifier transcending by programmable read-only memory is possible, the company said. The board's base address is programmable anywhere in the 16M-byte Vmebus memory map. Operating temperature is zero degrees Celsius to 70 degrees Celsius, and power requirements are +5V, +12V, -12V and +5V standby.

The price for the product is \$495. Data-Sub Systems/U.S., Suite 3, 2219 S. 48th St., Tempe, Ariz. 85282.

PRINTERS/PLOTTERS

OUTPUT TECHNOLOGY CORP.
OT-700 printer

Output Technology Corp. has announced the OT-700 matrix printer, said to offer correspondence-quality printing at 360 char./sec. and a dot-addressable graphics capability.

Centronics Data Computer Corp. type parallel and RS-232C serial interfaces and a 4K-byte buffer memory are offered as standard features, the company said.

Other features are 136-cpl. carriage width and character sets including foreign languages.

The OT-700 printer costs \$1,795. Output Technology, Suite 205, 600 110th Ave. N.E., Bellevue, Wash. 98004.

MICROCOMPUTERS

Grid adds to Compass line Enhancements include systems, application software

■ Informatics General Corp. has enhanced PC/NetLink, a retrieval package for on-line data base systems/44

■ Sweet Micro Systems has announced Trump Card, a board that increases IBM Personal Computer speed and throughput/44

INSIDE
Software/48



SMALL TALK
Paul Kornowski
On It

Fewer surprises as micro industry reaches maturity

Have you noticed that microcomputer whiz kids are becoming whomp kids? Steven Jobs and William Gates are fast approaching the Big Three-O. Potential whiz kids, such as the college-age founders of Arktronics, Inc. are finding that duplicating the company-run-out-of-a-garage success of Apple Computer, Inc. is practically impossible.

The microcomputer industry has grown up. It has reached the stage when parents hand their sons the car keys and go to sleep rather than pace the floor. The change was evident at Comdex/Fall '84, which was slow-paced and lacked the excitement of previous shows.

This change can also be traced to decisions made in large corporations. No longer are companies frantically searching for the best data base management system or spreadsheet package. Most are content with one package and are slow to replace it. There may be a better integrated package than Lotus Development Corp.'s 1-2-3, but a large-scale displacement of 1-2-3 is unlikely, if not impossible.

Since the microcomputer industry has reached this new age, users should not expect many surprises in 1985. Hardware shapes up as a two-company race with IBM and Apple pulling away from the rest of the field.

IBM's Personal Computer AT and Apple's Macintosh solidified these companies' premier positions. Currently, they account for 46% to 60% of the market, which may increase to 60% to 80% at the end of 1985.

Tandy Corp. made a valiant attempt to stay with this pack in 1983 when it introduced its TIS-80 Model 2000. But that machine was quickly lapped, and Tandy, like a myriad of other vendors, is now trying to copy IBM with the recent announcement of the Tandy TIS-80 Model 1000, an IBM Personal Computer-compatible machine.

Data General Corp. and Hewlett-Packard and Co. have decided to run in the laptop microcomputer race, which is not as prestigious as the desktop race. They are not intimidated by the lack of success of other vendors, like Gavilan Computer Corp., Visual Computer, Inc. and Convergent Technologies, Inc.

But they should be intimidated. Simply put, most employees would rather leave their work at the office than bring it home.

Despite the fact that HP will introduce an AT&T Unix-based laptop and IBM will announce its laptop entry, this market will again fail to experience the boom that pundits have incorrectly predicted for at least two years.

In software, the big success will continue. In 1984, VisiCorp, once the premier software company, was crushed as it

See **SHOW** page 45

By Kathleen Sullivan
CW West Coast Bureau

MOUNTAIN VIEW, Calif. — Grid Systems Corp. earlier this month added to its Compass II line of portable computers by introducing two models that feature a larger electroluminescent screen. Grid also lowered the price on older Compass II systems and unveiled three software packages: Gridmaster, Gridpoint and Gridtask.

The Grid Models 1181 and 1190 are said to feature an 8.5-in. diagonal, bit-mapped screen that can display 85 lines and accommodate up to 128 char./line. (The other members of Grid's portable computer family have 6-in. screens and display up to 80 char./line on a 35-line screen.)

The Compass II Model 1181 includes 262K bytes of random-access memory (RAM), 354K bytes of nonvolatile bubble memory, up to 612K bytes of user-installable read-only memory cartridges and a built-in 300 or 1,200 bit/sec modem. It is priced at \$6,795.

The Compass II Model 1190, a 512K-byte version of the computer, sells for \$7,995. Like the rest of Grid's computer line, the systems can run Grid's proprietary operating system or Microsoft Corp.'s MS-DOS, the company said.

Compass II price reductions

In the same announcement, Alan B. Leif, Grid's vice-president of marketing, said the company would be dropping the price of the two original Compass II systems, introduced last June, by 10% to 15%. The 256K-byte Model 1121 will now cost \$5,995, and the 512K-byte Model 1129 will be priced at \$7,195.

The firm's expanded line of integrated software packages includes Gridmaster, an icon-based desktop organizer said to provide programs that keep track of appointments, addresses, files, organizational charts and project schedules. It also fea-

tures an automatic telephone dialer and a calculator, the firm said.

In addition, icons that represent automated desk and management functions appear on a line at the bottom of the screen that holds up to 10 icons at a time. The program sells for \$250.

Gridpoint, an Apple Computer, Inc. Macintosh-like paint program, is said to allow users to create a variety of on-screen graphics images. Using Grid's electronic pens, paintbrushes, rulers and compasses, users can draw circles, rectangles, lines and free-form shapes. By connecting the computer to a digitizer from Datacopy Corp., also based here, users can transfer photographs to the computer screen, the company said.

In a demonstration at the company's headquarters, the firm showed how to design images using either Grid's keyboard and built-in commands or a mouse. Gridpoint includes 11 different patterns that can be used to fill in an area. The program sells for \$300, the company said.

Finally, the firm introduced Gridtask, a high-level programming language that is said to allow users to create custom applications that can hide the underlying complexities of the system from inexperienced users. Gridtask divides the screen into two windows. While an applications program is running in the background in one window, the Gridtask window displays a menu of choices available to the user, the firm said.

For example, with Gridtask a program could be written that would allow a sales manager to retrieve revenue data from six different host computers by pressing one key and without understanding how the process takes place, the company said. Gridtask sells for \$250.

Further information may be obtained from Grid, 2535 Garcia Ave., Mountain View, Calif. 94043.

Software utility converts Dbase II to C English

CHICAGO — C Line, Inc. has announced a utility that converts programs written for Ashton-Tate's Dbase II to they can be used with C Line's C English.

C English is a fourth-generation programming language that possesses many characteristics of C, the company said. The converter reportedly was designed so that large or complex Dbase II programs can be run under C English.

The Dbase II-to-C English converter is said to transform Dbase II files into a format suitable for the target data base manager used by C English. It is also said to create a compiled program that runs faster than an interpreted Dbase II program. Because C English uses a syntax similar to Dbase II, it does not require programmer retraining, the vendor said.

A C English compiler interface reportedly provides complete portability by translating C English into source code and using a host C compiler to produce native machine code. The converter reportedly saves program development and runtime charges.

The software utility runs on an IBM Personal Computer XT with IBM's PC-DOS 2.0 and other machines with Microsoft Corp.'s MS-DOS 2.0 and a hard disk.

The product is priced at \$300 with the C English language and \$500 without the language. C English costs \$795.

C Line is located at 20 W. Ontario, Chicago, Ill. 60610.

Grammar aid out

LONGBOAT KEY, Fla. — Is your writing riddled with "or-so-out-clashes"? Did a coworker point out a spelling error in the memo you sent to your supervisor? If so, Decisionware, Inc. says it has a product that may help you: a grammar corrector that works on an IBM Personal Computer with IBM's PC-DOS operating system.

Decisionware's Rightwriter software incorporates artificial intelligence techniques to analyze documents for errors in grammar, usage, punctuation, style and spelling, the vendor said.

The package reportedly helps lighten writing by pointing out wordy phrases, weak sentences and overused words. It also points out clichés, slang, passive voice and jargon, Decisionware said.

The product is said to base its decisions on 1,500 grammatical rules and a dictionary of more than 30,000 words. It also uses the U.S. Department of Defense's standard to calculate the reading grade level for each document, Decisionware said.

Rightwriter works with documents created by a number of word processing packages, including Micropro International Corp.'s Wordstar, Software Publishing Corp.'s PFS:Write and Microsoft Corp.'s Word, according to the vendor.

The product requires 96K bytes of random-access memory and two disk drives.

Rightwriter costs \$75.
Decisionware is located at 4030 Gulf of Mexico Drive, Longboat Key, Fla. 33548.

MICROCOMPUTERS

Enhanced PC/Net-link available

ROCKVILLE, Md. — Informatics General Corp. has announced an enhanced version of its PC/Net-Link, a menu-driven software package for information retrieval from on-line data base services. PC/Net-Link, for the IBM Personal Computer XT or Personal Computer with external hard disk drive, now features downloading and uploading capabilities, according to the company.

The package automatically logs on and provides a menu-assisted approach to data bases from most major on-line retrieval services such as Dow Jones & Co. and Lexis/Nexis, Informatics said. Enhancements reportedly permit the user to create and edit search formats off-line and later upload them to the chosen data base and to download search results to hard disk.

"PC/Net-Link also allows the searcher to find information even if the data base and its services are not known," said Lucinda Leonard, vice-president for Informatics' Library Services Division.

Integrated directory

"The package contains a single integrated directory of data bases from all of the services it accesses," Leonard said. "Its two-level subject menus lead the searcher to the right group of data bases for the search. The searcher then has two options: Reviewing a list of data bases within that group, or seeing an on-screen description of a specific data base's contents and a list of the retrieval services through which it is available."

The enhanced PC/Net-Link, available now, is priced at \$550. Required communications software costs an additional \$100.

Informatics' Library Services Division is located at 6011 Executive Blvd., Rockville, Md. 20862.

Trump Card boosts IBM micro performance

CRANSTON, R.I. — Sweet Micro Systems has announced the Trump Card microcomputer board, said to increase speed and improve throughput of selected tasks in the IBM Personal Computer and compatibles.

Trump Card is said to run programs from 10 to 100 times faster than a Personal Computer alone and is said to

provide from three to five times throughput improvement in assembly language benchmarks.

The product plugs into an IBM Personal Computer or compatible and features a 16-bit Zilog, Inc. Z8001 microprocessor, the vendor said. Trump Card is compatible with Microsoft Corp.'s MS-DOS and IBM's PC-DOS.

Trump Card reportedly has its own operating system called 2S/YS, with capabilities including dual-program processing, allocation of unused memory for cache storage, and monitor support.

The product is provided with three languages: TheC Compiler, compatible with IBM Basics source files; C-Compiler to compile all stan-

dard C programs; and a Y Z8000 Structures Assembler, the company said.

Trump Card sells for \$895. The price for Trump Card with 256K bytes of random-access memory (RAM) is \$1,395, and the price with 512K bytes of RAM is \$1,695.

Sweet Micro Systems is located at 50 Freeway Drive, Cranston, R.I. 02920.



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MICROCOMPUTERS

SOFTWARE

THE INFORMATION PEOPLE PROFILE
Organizer II

The Information People has announced an enhanced version of the Organizer II, a universal operator interface designed for the IBM Personal Computer line.

Organizer II is a window-based application integration package that reportedly fea-

tures a menu generator with a built-in help facility and the capability to process multiple system commands with prompted operator entry.

The product also incorporates a facility for multiple disk mount requests and verification and a disk file management system, the vendor said.

The enhanced version of Organizer II reportedly makes use of the IBM Personal Computer's speed, color, line graphics and expanded num-

ery features.

Using the product, microcomputers running Microsoft Corp.'s MS-DOS; IBM's PC-DOS; Digital Research, Inc.'s CP/M; MP/M and Concurrent CP/M; and Musys Corp.'s TurboDOS operating systems can be made to appear functionally identical, according to The Information People.

Organization II is priced at \$149.

The Information People, 443 Hudson Ave., Newark, Ohio 43065.

GROWN from page 43

failed to deliver much of anything except Visicalc. The settlement of a legal dispute returned Visicalc to its developer, Software Arts, Inc. VisiCorp then merged with Paladix Software Corp. Micro International Corp. and Digital Research, Inc. may join VisiCorp. Micropro has been unable to sever its dependence on Wordstar, as seen by the recent debut of Wordstar 2000.

Digital Research will curse the day that IBM chose Microsoft Corp.'s MS-DOS operating system. Despite the fact that Digital Research has delivered solid, state-of-the-art systems, few seem interested in purchasing them.

Despite the criticism that Symphony received, it ensured Lotus' position as the most important micro software supplier. Symphony has not equaled 1-2-3's success, but it has been ranked as one of the five top-selling products of 1984. Jani, a bona fide winner, will enrich Lotus' already-vast coffers.

IBM plans to be a contender for the title of second most important micro software developer. While its recent offerings were not earth-shattering, they do carry the Big Blue label, a guarantee of success.

Emerging software companies will have to tangle with IBM and Lotus for a market share. Vendors, such as Lightyear, Inc., that are pioneering new applications by incorporating artificial-intelligence-like capabilities have the best chance for success.

In addition to good products, the pioneers will require marketing expertise, venture capital and a lot of luck. Vendors offering little more than an improved data base manager or word processor seem destined to fail.

With hardware and software somewhat stabilized, peripherals are becoming the area of innovation. A number of companies are following HP's lead by offering laser-jet printers. With printer cost coming down, these products will become popular.

As the quality of micro graphics have improved, tools that transform graphics into slides or read graphic input, such as a photograph, have emerged. Firms are solving training problems by using micros and video recording units.

The fact that peripherals are the main area of innovation in the microcomputer industry tells us how the industry has changed. In sum, 1986 looks like a typical year in a mature industry.

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COMPUTER INDUSTRY

Exec questions IBM role

Apple's Sculley credits Big Blue with spurring market growth, cites need for 'different vision'

By David Ottens
CWI Staff

PALM SPRINGS, Calif. — IBM's entry into the personal computer market in 1981 helped spark the industry's sensational growth, but Big Blue's dominance has also stunted innovation in the field, according to the head of Apple Computer, Inc.

John Sculley, president and chief executive officer at Apple, said IBM's entry into the market helped to "lend tremendous credibility to the personal computer." However, he said, the industry has paid a high price by allowing IBM to set the important standards for microcomputers. In so doing, he asserted, IBM has been able to "define the shape of the industry. And I think that's a dangerous situation."

Sculley made his remarks at an industry conference sponsored by Infoport, a Cupertino, Calif.-based market research company. Praising IBM as the best managed traditional corporation in the world, Sculley said he worried that "the vision of the personal computer is going to be defined largely by the dominance of a company

that sees the world through the eyes of being the largest mainframe company and that looks at the personal computer as a lower cost, smaller version of those larger products that it makes for computer experts."

Acknowledging the criticism Apple has received for not making its systems IBM-compatible, Sculley said the firm has a "different vision" for the industry. He defined that vision by saying, "Give the person a creative tool and build computers for the noncomputer expert."

Sculley conceded that Apple was in trouble a year ago when sales of the Apple II, III and Lisa were sluggish and earnings depressed. "The question was if IBM going to own it all? Was George Orwell right in 1984?" he said.

Sculley then showed the television advertisement that Apple ran during the 1984 Super Bowl introducing the Macintosh computer. The ad depicts a Big Brother-type society — a thinly disguised reference to IBM. Sculley said Apple almost did

See APPLE page 50

Sperry plans major product line expansion

By Charles Rosebush
CWI Staff

NEW YORK — Sperry Corp. has lost too many sales to other manufacturers by concentrating on mainframe computers and is planning to offer a full line of interchangeable micro, mini and supercomputers as well as mainframes, Sperry officials told security analysts here recently.

Joseph J. Kruger, president of Sperry's Information Systems Group, said Sperry has the second largest revenue-producing computer base in the world; it will yield \$17 billion in 1985. Selling additional products to that customer base would yield a profit growth of 25% to 50% by 1986, he added.

At the end of the briefing, security analysts questioned whether Sperry should view the customers for its projected micro and mini offerings as part of its customer base. Even if a Sperry mainframe is in operation at a given site, the location may be

See SPERRY page 50

■ A ratio measuring the health of the semiconductor industry continued its recent decline in November/48

■ Trilogy Ltd. recently named a new chief executive officer and announced it is negotiating to buy a small semiconductor manufacturer/48

■ Apple Computer, Inc. possibly moved closer to the Fortune 500 market with the recent announcement that General Electric Information Systems Co. will resell Apple's Macintosh and other products to its customers/50

NCR to move micro plant, boost production

DAYTON, Ohio — NCR Corp. recently said it will shift production of the NCR Personal Computer IV from Clemson, S.C., to Augsburg, West Germany, and will establish assembly plants in both the U.S. and in Augsburg and elsewhere in Europe.

The company described as erroneous a published report that said NCR would seek an outside supplier for an IBM-compatible microcomputer to be sold under the NCR label.

NCR claimed, rather, that it intends to increase production of its latest micro product, which has been the subject of an intense advertising blitz in recent months.

Additionally, the company denied that

it will close down the Clemson facility. The personal computer development staff as well as the manufacturing operations of other NCR divisions will remain at that plant. Production of self-service terminals, however, will be shifted from Clemson to Ithaca, N.Y.

According to NCR, all production of NCR-built parts for the micro product will be transferred to Augsburg. Final assembly of the NCR components, along with components from outside sources, will be done in Augsburg and at a handful of plants in the U.S. and abroad. The shift will enable the company to switch to a zero inventory or just-in-time approach, where-

by inventories are closely matched to actual production levels, according to Vernon Yates, vice-president and general manager of the personal computer division.

In addition to the inventory strategy and a reduction in distribution costs expected from establishing satellite assembly plants, the changes will enable the division to respond better and more quickly to specific machine configuration requirements, Yates said.

Despite a widespread perception that the NCR micro is encountering difficulties penetrating a saturated retail market, Yates said the company has been meeting its goals for signing up dealers.

Staying alive vs. IBM dominant theme at conference

By David Ottens
CWI Staff

PALM SPRINGS, Calif. — Has IBM become an unbeatable opponent in the computer industry or was just a formidable adversary? That question was the dominant theme of a recent industry conference here.

"There is one question that has to be faced: Is IBM invincible?" said Richard J. Matlack, president of Infoport, a Cupertino, Calif.-based, market research company that sponsored the annual conference attended by top industry executives.

In his remarks during the conference's opening session, Matlack answered his own question by suggesting that, although IBM promises to provide increasingly tough competition in various segments of the industry, there are still opportunities for those companies that act wisely.

"My firm belief is that IBM does an outstanding job at what it does, and there's a lot we can learn from its activity," Matlack said. "But the opportunities that exist in this marketplace are still the most exciting of all the industries I can think of."

Matlack described the formidable challenge posed by IBM by charting some of Big Blue's suc-

cesses, ranging from its domination of the mainframe business to its controlling roughly 40% of the personal computer retail distribution channels in the roughly 3½-year period since it introduced the Personal Computer.

Pressure on smaller manufacturers

In 1984, Matlack said, IBM put a lot of pressure on the personal computer industry, particularly on the smaller manufacturers. He described the debut of IBM's Personal Computer AT as "a very powerful and important" announcement. Moreover, the introduction last August of IBM's Topview software was perhaps one of the most important software announcements that will ever hit the personal computer business, he asserted.

Matlack offered his views on how IBM's actions during 1984 have affected some of the microcomputer makers and how those firms stand to fare in coming years.

At Apple Computer, Inc. "Apple's made a lot of noise and smoke, but it's hard to tell how successful it has been in waging war against IBM." The key question, Matlack said, is whether Apple can, even at its size, maintain a position of

strength, or "is it going to be battered by the onslaught of IBM?"

■ Hewlett-Packard Co. Describing HP as the "kind and gentle" company with "tremendous technology," Matlack said HP has done well in technical markets but less so in other markets. But given HP's size and strengths in innovation, "is it big enough to . . . assume a major role?"

■ AT&T. The firepower is there, but a demonstrated ability on the marketing side is not there yet.

■ Kaypro Corp. Kaypro has done well supplanting Osborne Computer Corp. after Osborne's bankruptcy filing, but "it's taken so many shots to the body . . . that it's real hard to see if it's going to make a real business first."

■ Compaq Computer Corp. "Compaq is very vulnerable to IBM price cuts." The company is in "a very defensive position. It's not clear what its alternatives are; perhaps some other niche."

More personal computer makers are likely to be driven out of business because of the market dominance of IBM and Apple, Matlack said. A similar consolidation is likely to occur among microcomputer software and disk drive manufacturers.

COMPUTER INDUSTRY

SIA figures show continued decline in chip orders

SAN JOSE, Calif. — Semiconductor bookings and billings for the U.S. market declined again in November and marked the third consecutive month that the rate of new orders trailed shipped orders, according to figures released by the Semiconductor Industry Association (SIA).

Average monthly book-

ings for the U.S. market for the three-month period ended in November were \$589.9 million, a 15% decline from the August to October period. November billings totaled \$886.3 million, a 2.6% decline that the SIA said reflected massive order cancellations during the August through October period.

SIA President Thomas D.

Hinkelmann said the association expects December billings to be somewhat higher than those for November but added that fourth-quarter shipments will be down 10% from the third quarter.

Hinkelmann said that, for the first quarter of 1985, shipments of completed orders are expected to be flat at best. Regarding 1985, Hinkel-

mann said, "The industry's performance will depend upon three factors — the duration of the present inventory adjustment, the real rate of growth in semiconductor usage and the degree of price attrition."

The SIA estimated that, based on current market conditions, the U.S. market for semiconductors will grow

less than 10% in 1985, compared to an expected 46% growth for 1984 over 1983.

Since January, the SIA's book-to-bill ratio, a comparison of new orders to completed orders, has declined monthly. The ratio stood at 1.53 in January, indicating 14 times as many new orders as completed orders for that period. Since then, the ratio dropped to 0.61 in November, indicating fewer new orders than completed orders. For August, the SIA reported that new orders and completed orders were equal, and for the three subsequent months, new orders have fallen short of completed orders.

The deterioration of the market has been demonstrated by the recent announcement by Texas Instruments, Inc. that it is cutting its work force by 2,000 (CW, Dec. 17). More recently, Intel Corp. announced that it expects fourth-quarter revenues to be 5% to 10% lower than the \$432 million it reported for the third quarter, and earnings per share will probably be down about 50% from the 40 cents reported for the fourth quarter in 1983.

According to Gordon E. Moore, chairman and chief executive officer of Intel, the company does not expect any substantial recovery until at least the second quarter of 1985.

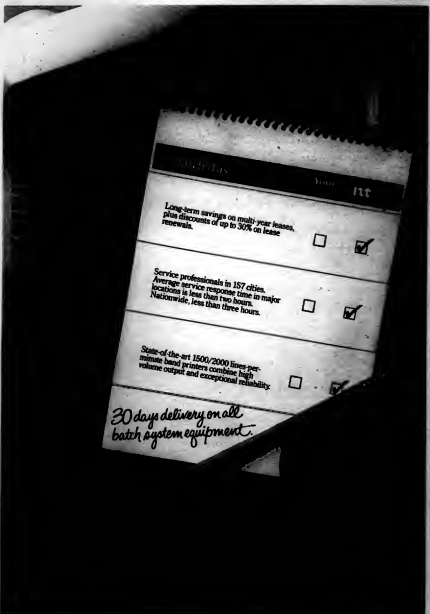
"Manufacturers of office automation equipment, including personal computers, are either canceling their orders for semiconductors or rescheduling for later delivery in order to reduce inventories," Moore said.

Cbema sees revenue rise

WASHINGTON, D.C. — Computer and business equipment industry revenues will increase by 12.4% in 1985 to \$173 billion, according to projections made by the Computer and Business Equipment Manufacturers Association (Cbema).

Cbema said that 1984 revenues were \$164 billion. It further projected that spending on R&D will climb above \$10 billion in 1985, up 11% from 1984. The projected 12.4% revenue increase falls below the 14.1% average annual increase in revenues reported by the computer industry over the last 10 years, said Cbema, which attributed some of the past growth to inflation.

Cbema also predicted that computer industry employment will grow at an average annual rate of 7.1%.





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COMPUTER INDUSTRY

Trilogy names CEO, seeks to acquire Cmos chip maker

CUPERTINO, Calif. — Trilogy, Ltd. announced recently that company President Henry C. Montgomery has been appointed to the additional position of chief executive officer, assuming the daily operational duties formerly performed by the company's chairman and founder, Gene H. Amshel.

Trilogy also announced it is engaged in negotiations to acquire a privately held manufacturer of Cmos gate array semiconductors.

Montgomery, 48, joined the company as president in September. He had been president of his own management consulting firm and had previously held executive positions at Partridge Camera and Instrument Corp. and Memorex Corp.

Prior to Montgomery's joining the company, Trilogy had suffered 10 months of bad news pertaining to its plans to develop a wafer-scale semiconductor and build a large-scale, IBM-compatible mainframe computer

around the wafers. The company eventually canceled both projects and took a \$43 million write-off.

In a statement announcing Montgomery's new title, Amshel said the move formalized a gradual shift of day-to-day responsibilities from himself to Montgomery and will allow Amshel to concentrate on long-range strategies and strategic opportunities for the company.

Shortly after the announcement of the executive reorganization, Trilogy said it was engaged in discussions to acquire California Devices, Inc. (CDI), a privately held manufacturer of Cmos gate array semiconductors.

Based in San Jose, Calif., and with reported annual revenues of about \$7

million, CDI now markets three families of Cmos gate arrays and plans further product introductions next year.

Part of strategic plan

Amshel said the possible acquisition would be part of the company's new strategic plan to acquire outside product and marketing capabilities and to enhance utilization of Trilogy's own facilities. "We believe that the CDI technology, product line and marketing team would combine very well with the resources of Trilogy, including our design capabilities and fabrication facilities," Amshel said.

Bill Caparelli, a senior vice-president at CDI, said the potential merger

would give his company immediate access to Trilogy's development and manufacturing resources, including E-beam, mask-making installation capabilities of up to four layers, full wafer fabrication and manufacturing capabilities.

According to Caparelli, "CDI currently has technology that enables customers to use a data base common to both the standard cell and our gate arrays [without channel], thus allowing total design flexibility. With direct access to Trilogy's advanced fabrication facility, CDI will have the capability needed to support our plans for advanced, custom product development, including standard cell."

Mitsubishi, Leading Edge meet in court

CANTON, Mass. — Leading Edge Products, Inc. is battling the Japanese giant Mitsubishi Electronics America, Inc. in court to secure its sole supply of microcomputers.

Leading Edge, which sells Mitsubishi-supplied personal computers under its own label, charged that Mitsubishi violated a supply agreement by withholding shipment of computers, according to published reports.

Mitsubishi reportedly had agreed to supply Leading Edge with computers every 60 days to pay its bills after the invoice date and lower its prices in the event that market conditions "materially change."

Leading Edge slashed retail prices on its systems by one-third, according to the reports, following IBM's Personal Computer price reductions of 18% to 23% in June. However, Mitsubishi would only reduce its prices to Leading Edge by 7%.

In a corporate dance manœuvre, Leading Edge deducted a portion of its payment representing the discount it felt it was entitled to; Mitsubishi objected; Leading Edge paid in full; Mitsubishi told the company it had violated the contract by withholding a portion of the payment and refused to ship any more computers until Leading Edge agreed to forego price reductions.

Leading Edge filed suit in federal court in Boston claiming breach of contract, and Mitsubishi filed suit against Leading Edge in federal court in Los Angeles seeking payment of bills.

Judge Robert Keeton, in a Dec. 11 hearing in federal court in Boston, issued a temporary restraining order against Mitsubishi, ordering it to continue delivery of the systems, which it has done after holding up 7,000 computers for more than a week.

The companies also are reportedly negotiating to try to resolve the matter out of court.

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COMPUTER INDUSTRY

Geisco to resell Apple products, offer clients support, service

ROCKVILLE, Md. — General Electric Information Services Co. (Geisco) recently announced it will become a value-added reseller of Apple Computer, Inc. products. Geisco has begun developing software to permit electronic downloading of software from corporate mainframes, via its GE network, to Apple's Macintosh computers.

Geisco said it will support, service and maintain Apple microcomputers on behalf of its clients and that its Integrated Communications Services operation will provide hardware support, rentals and leasing.

William V. Campbell, Apple's exec-

utive vice-president for sales, distribution and marketing, said the company was excited that Geisco will incorporate the Macintosh machines into its business communications systems.

The arrangement provides Apple with a much needed distribution channel into the Fortune 500 market, which is heavily represented in Geisco's customer base.

Michael J. Emml, senior vice-president of marketing and U.S. sales operations with Geisco, said the Apple Macintosh will provide his clients with "a new and very friendly alternative."

SPERRY from page 47

part of someone else's small computer base, an analyst pointed out.

Another questioned whether Sperry would make enough money selling microcomputer products.

Kroger responded that Sperry was offering an integrated lineup. "I think I know our customer base extremely well. They're going to be disappointed if we don't provide [these products]," he said.

Sperry plans to capture more computer sales within its customer base with the following moves, according to Kroger and James B. Aldrich, vice-president for strategic planning and market development:

- Extend its 1100 mainframe line downward to the desktop and upward to the supercomputer [100 million instructions per second (Mips)]

range, Aldrich said.

- Make products compatible with IBM's Systems Network Architecture (SNA). Sperry has nearly 110 million in its SNA laboratory to reverse-engineer IBM systems and make sure it can link its mainframes to IBM mainframes, Aldrich said.

- Get new products out early in response to demand for new technology, Kroger said.

- Form strategic partnerships with other companies when needed and buy components from outside sources. Sperry has abolished the "not invented here" syndrome, company officials said.

- Offer new software for 1100 series applications to increase demand for the processors. New applications combined with Sperry's fourth-generation language, Mapper, and new micro products "will result in an explosion in the Mips required in our base," Aldrich said.

- Produce multiple products from one technology advance or chip set. A member of the 1-Mips Swift family of microcomputers will be introduced in 1985. A member of the 5-Mips to 18-Mips Saturn family will be introduced in 1986, and a member of the 25-Mips Mercury family will be out by 1990, according to Sperry's plan.

- Make Sperry mainframes interconnectable to increase their maximum Mips range and to allow IBM customers to be able to choose them as expansion units.

Sperry has shipped 40 of the 1100-90 model mainframes so far this year and expects to ship 91 to 100 units, worth approximately \$476 million, by the end of fiscal 1985. Sperry expects to ship 150 mainframes in 1986, according to Sperry Controller Edwin P. Gilbert.

APPLE from page 47

not run the ad after its board of directors reviewed it and gave it an unenthusiastic reception.

"But it was an important commercial to run because it was a statement that Apple was still in the game, that our best years were not behind us, that we were still willing to bet our future on a vision that was not yet expressed," he said.

Sculley noted that the media also criticized Apple this year for spending \$2 billion for an extravaganza at San Francisco's Moscone Center to introduce the Apple IIc. Scuffling at the criticism, he claimed the company sold 50,000 IIc's the first day and "got our money back in two hours."

Sculley asserted that new market niches can and must be created in the personal computer industry. "I get real upset when I hear people say, 'Find a niche you can reside in where IBM will leave you alone,'" he said. "What kind of a strategy is that? That's not vision; it's survival."

Sculley said the markets that exist today are finite, and he stressed the need for all companies, not just the industry leaders, to take innovative approaches to creating new markets.

Sculley said he believes the business market for personal computers today is only a small fraction of what it will be in the future. He said non-technically oriented middle-level managers will be the business people most affected by the so-called information society of the future and suggested that a computer aimed at addressing their evolving needs will be one future market niche.

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COMPUTERWORLD's paid circulation climbed to over 126,000 this fall. Folio 400 (Folio Magazine's study of trade publication performance) placed us first in total revenue. As the industry grows, so will **COMPUTERWORLD**. It will continue to offer the high quality news coverage and editorial content that has attracted its readers. What does that mean to you, our advertisers? Good news...in the form of wide exposure.

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- February 25 - Communication Networks
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- July 15 - NCC Show (early close July 3rd)
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- September 30 - Minis & Small Business Systems
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- December 30, 1985 & January 6, 1986 - Forecast '86

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computer and telephone
by
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Garbinger, Mass 02130

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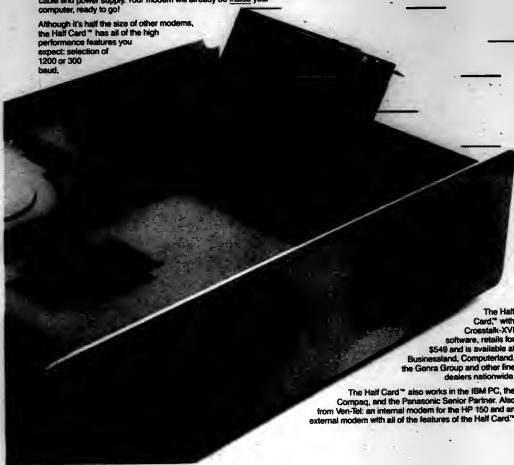
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